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<th>Semester: winter / summer</th>
<th>Module language: English</th>
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Objectives of the module:
Program includes lectures and practical exercises from equine reproduction, surgery, internal medicine and infectious diseases. During the course students gain knowledge and practical skills from all four disciplines. Program of the course includes presentation and use of diagnostic and treatment methods of most common internal, surgical, infectious, reproductive tract diseases and disorders. The aim is to provide knowledge on the aetiology and pathogenesis of equine diseases requiring surgical, internal or obstetrical treatment, teach to perform clinical diagnosis and examination and apply proper therapeutical procedures.

Teaching forms and number of hours:

- **a)** Lectures: 15h+15h+15h+15h=60h
- **b)** Classes: 30h+45h+15+30h=120h

Teaching methods:
Oral presentations with audio-visual techniques e.g. videos, 3D animated visualizations or other multimedia presentation types 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. The course is conducted with the use of multimedia techniques, e.g. computer programs, videos, computer presentations.

## LECTURES

### Reproduction, reproduction disorders, obstetric:
1. Hormonal patterns (hormones of the hypothalamus, gonadotropic hormones, neurotransmitters, steroid hormones, prostaglandins and posterior pituitary hormones).
2. Hormonal regulation of the cycle in the mare.
3. Physiology of pregnancy, fertilization, blastogenesis, implantation i.e. placenta and foetal development in the mare.
4. Pregnancy disorders.
5. Abortion in the mare – causes.
7. Principles of hormonal therapy and the usage of hormonal drugs for the treatment of the reproductive disorders.
8. The post-natal period – physiology and pathology (2 lectures)
9. Physiology and pathology of the neonate, i.e. postpartum development
10. Fertility disorders in mares (2 lectures)
11. The reproduction disorders – infectious causes.
12. The influence of nutrition on the mare’s fertility.

### Infectious Diseases:
1. Equine herpesviruses, African horse sickness – epidemiology, aetiopathogenesis, diagnostics and control
2. Equine viral arteritis, equine viral encephalitis –epidemiology, aetiopathogenesis, diagnostics and control
3. Equine influenza, miscellaneous viral diseases – epidemiology, aetiopathogenesis, diagnostics
and control

4. Anaerobic infections, equine tetanus, gastrointestinal tract infections – epidemiology, aetipathogenesis, diagnostics and control

5. Epizootic lymphangitis, ulcerative lymphangitis, Borrellosis (Lyme disease) – epidemiology, aetipathogenesis, diagnostics and control

Surgery:


3. Laminitis as an illness syndrome.

4. Reminder: the concept of wound and ways of healing, basic concepts related to wound healing, discuss the conditions of wound healing by primary intention. Problems in the healing of wounds on the limbs in horses.

5. Specific features of anaesthesia of horses.


15. Equine recurrent uveitis: the essence of the disease, the incidence, aetiology, symptoms and diagnosis, treatment.

Internal medicine:
1. Skin diseases of horses

2. Respiratory system diseases (3 lectures)

3. Cardiovascular system diseases

4. Digestive system diseases (4 lectures)

5. Urinary system diseases

6. Nervous system diseases (2 lectures)

7. Laminitis

8. Rhabdomyolysis and other muscle diseases

9. Metabolic and hormonal diseases

CLASSES

Reproduction, reproduction disorders, obstetric:
1. Morphological evaluation of the mare’s reproductive organs.

2. The clinical examination technique of the mare’s reproductive tract, i.e. rectal palpation, trans-vaginal examination, vaginoscopy.

3. Oestrus cycle in horses. Oestrus cycle phases detection and ovulation time determination.

4. Clinical diagnosis of pregnancy in mares. Additional test for the pregnancy diagnosis in mares – laboratory methods, i.e. biological, chemical, enzyme immune-enzymatic, radio-immunological

5. Ultrasound diagnostic management in equine gynaecology and obstetrics. The presentation of mare’s reproductive tract ultrasound examination and archival ultrasound images.

6. The mare’s reproductive tract diseases - diagnosis and therapy. Additional diagnostic methods in management of the mare’s reproductive tract: sampling for microbiological tests, uterine biopsy, uterinoscopy.
9. Uncomplicated parturition progress, i.e. delivery phases, the foetus location in the uterus. General principles of the assisted foaling.
10. The difficult parturition and dystocia - clinical diagnosis and fundamental principles of the assisted parturition. The foetotomy and caesarean section - indications and the technique.
12. Health control in mares, the fertility analysis, the work organization for the veterinarian specialized in equine reproduction.
14. Neonatal distress score in foals. The early neonatal period – physiology and the most common disorders.

Infectious diseases:
1. Foals septicaemia, rhodococcosis – epidemiology, aetiopathogenesis, diagnostics and control
2. Strangles, glanders, equine infectious anaemia – epidemiology, aetiopathogenesis, diagnostics and control
3. Miscarriages in horses – diagnostics and control. Immunoprophylaxis in horses

Surgery:
1. Hoofs normal, compensatory, pathological. Horseshoes and shoeing of horses with normal, compensatory and pathological hoofs
2. Chronic laminitis. Canker
3. Purulent fistula
4. Tendinitis
5. Bone spavin
6. Marginal intra-articular fractures in horses
7. Fractures of first phalanx
8. Laryngeal hemiplegia
9. The diseases of the teeth and paranasal sinuses in horses
10. Treatment of the horse with colic
11. Skin tumours
12. Castration of stallions. Cryptorchidism
13. Laparotomy. Cutting and resection of intestine

Internal medicine:
1. History taking, general clinical examination, special clinical examination, clinical pathology, differential diagnosis, final diagnosis, treatment and prevention of skin diseases
2. History taking, general clinical examination, special clinical examination, clinical pathology, differential diagnosis, final diagnosis, treatment and prevention of respiratory system diseases (3 classes)
3. History taking, general clinical examination, special clinical examination, clinical pathology, differential diagnosis, final diagnosis, treatment and prevention of cardiovascular system
4. History taking, general clinical examination, special clinical examination, clinical pathology, differential diagnosis, final diagnosis, treatment and prevention of digestive system diseases (4 classes)
5. History taking, general clinical examination, special clinical examination, clinical pathology, differential diagnosis, final diagnosis, treatment and prevention of urinary system diseases
6. History taking, general clinical examination, special clinical examination, clinical pathology, differential diagnosis, final diagnosis, treatment and prevention of nervous system diseases (2 classes)
7. History taking, general clinical examination, special clinical examination, clinical pathology, differential diagnosis, final diagnosis, treatment and prevention of laminitis
8. History taking, general clinical examination, special clinical examination, clinical pathology, differential diagnosis, final diagnosis, treatment and prevention of rhabdomyolysis and other muscle diseases
9. History taking, general clinical examination, special clinical examination, clinical pathology, differential diagnosis, final diagnosis, treatment and prevention of metabolic and hormonal diseases

Formal prerequisites:
- Anatomy, Histology and embryology
- Physiology, Pharmacology, Patomorphology
- Diagnostic imaging, Clinical and laboratory diagnostics
- Surgery and anaesthesiology
- Veterinary epidemiology, Parasitology, Immunology, Biochemistry, Microbiology
Initial requirements\(^{17}\):  
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 conditions.

Learning outcomes\(^{18}\):  
<table>
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<tr>
<th>Student:</th>
<th>01 – Executes anamnesis with the aim of gathering detailed information about single animal, stud and their environment.</th>
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<td>02 – executes clinical examination with the focus on reproductive tract, musculoskeletal system, digestive tract, urogenital system, respiratory system both manually and with the use of appropriate additional methods e.g. instruments and utensils.</td>
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<td>03 – knows proper methods and instruments to diagnose infectious diseases, reproductive tract disorders, internal diseases and disorders requiring surgical intervention.</td>
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<td>04 – knows how to prescribe and use drugs, medical materials and vaccines according to legal regulations and rules of their safe storage and utilization; provides clinical documentation of each patient.</td>
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<td>05 – prepares evidence and documentation; uses existing files correlated with heard health, animal welfare and herd productivity.</td>
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<td>06 – creates clear documentation of clinical cases according to current legal regulations in the form that can be easily understood by other veterinarians or owners.</td>
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<td>07 – knows procedures in case of infectious diseases outbreak and when animal is suspected of notifiable infectious disease.</td>
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Assessment methods\(^{19}\):  

| 01, 02, 03, 04, 05, 06, 07 – oral/written tests from classes. Lectures – oral/written exam and practical exam. |

Formal documentation of the learning outcome\(^{20}\):  
Written tests, student’s assessment sheets, exam questions with results- stored and available for assessment of program realization level.

Elements impelling final grade\(^{21}\):  

| Classes- written tests 50%, oral test- 50%. Lectures- practical exam 20%, theoretical exam - 80%. |

Teaching base\(^{22}\):  
The didactic part of the classes and workshops will be conducted in classrooms of the Department of Large Animal Diseases in the Clinic in Wolica and in classrooms of the Faculty of Veterinary Medicine, Warsaw University of Life Sciences in the Campus Wolica and Ursynow. The rooms are equipped with interactive multi-media equipment and laboratory equipment. Practical courses in the management of equine reproduction and reproductive disorders are conducted in the Equine Clinic (Campus Wolica) and during field trips off campus, e.g. in major state / federal horse studs.

Obligatory and supportive materials\(^{23}\):  

**Textbooks:**  

**Journals:**  

**Annotations**\(^{24}\):  

**Quantitative summary of the module**\(^{25}\):  

| Estimated number of work hours per student (contact and self-study) essential to achieve presumed learning outcomes of the module\(^{16}\) – base for quantifying ECTS\(^{2}\). | 300 h |
| Total ECTS points, accumulated by students during contact learning: | 9 ECTS |
| Total ECTS points, accumulated by student during practical classes (laboratories, projects, seminars, etc.): | 3 ECTS |
Learning outcomes of the module relative to the learning outcomes of the subject:

<table>
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<th>Outcome No / symbol</th>
<th>Learning outcomes:</th>
<th>Relative to the learning outcomes of the subject:</th>
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<td>01</td>
<td>executes anamnesis with the aim of gathering detailed information about single animal, stud and their environment</td>
<td>U_PUZ1</td>
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<tr>
<td>02</td>
<td>executes clinical examination with the focus on reproductive tract, musculoskeletal system, digestive tract, urogenital system, respiratory system both manually and with the of use appropriate additional methods e.g. instruments and utensils</td>
<td>W_NK5, U_PUZ3</td>
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<td>03</td>
<td>knows proper methods and instruments to diagnose infectious diseases, reproductive tract disorders, internal diseases, and disorders requiring surgical intervention</td>
<td>W_NK3, W_NK4, W_NK7</td>
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<td>04</td>
<td>knows how to prescribe and use drugs, medical materials and vaccines according to legal regulations and rules of their safe storage and utilization; provides clinical documentation of each patient</td>
<td>WW_NP10, WW_NP12, U_OUZ3, U_PUZ10</td>
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<tr>
<td>05</td>
<td>prepares evidence and documentation; uses existing files correlated with heard health, animal welfare and herd productivity</td>
<td>U_PUZ17</td>
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<td>06</td>
<td>creates clear documentation of clinical cases according to current legal regulations in the form that can be easily understood by other veterinarians or owners</td>
<td>U_OUZ3</td>
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<td>07</td>
<td>knows procedures in case of infectious diseases outbreak and when animal is suspected of notifiable infectious disease</td>
<td>W_NK6, U_PUZ8</td>
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