



**ЛЕСОТЕХНИЧЕСКИ УНИВЕРСИТЕТ**  
**Факултет "Ветеринарна медицина"**

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## **SYLLABUS**

### **subject "VIROLOGY"**

for III<sup>rd</sup> course students in specialty "Veterinary Medicine" - Faculty of Veterinary Medicine at UF, Educational degree: Master

#### **I. GENERAL VIROLOGY**

1. History and importance of veterinary virology.
2. General characteristics of the viruses.
3. Hypotheses for the origin of the viruses.
4. Structure and morphology of the viruses.
5. Chemical composition of the viruses.
6. Taxonomy of the viruses. Principles.
7. Taxonomy of the viruses. Families.
8. Replication of the viruses.
9. Genetics of the viruses. Viral genomes and mutations of the viral genomes.
10. Genetic and non genetic interactions between the viruses.
11. Pathogenesis of viral infections. Stages of pathogenesis.
12. Types and forms of viral infections.
13. Antiviral immunity-nonspecific resistance.
14. Interferons. Types and effects of interferons in viral infections.
15. Specific immunity (cell-mediated and humoral).
16. Antiviral immunoprophylaxis (sera and vaccines).
17. Ecology of viruses.
18. Evolution of viral infections.

#### **II. SPECIAL VIROLOGY**

1. Picornaviridae-general characteristics of the family. Classification.
2. Enteroviral infections. Swine Vesicular Disease and others.
3. Aftoviruses. Foot-and –Mouth Disease (FMD), serotypes. Diagnostics.
4. Caliciviridae - characteristics of the family. Diseases.
5. Togaviridae - characteristics of the family. Viral encephalitis in horses.
6. Flaviviridae - characteristics of the family. Tick-borne encephalitis. Japanese encephalitis. West Nile disease.
7. Pestiviruses-Bovine viral diarrhea (BVD), Boder disease in sheep.
8. Classic swine fever. Characteristics of the disease. Diagnostics.
9. Coronaviridae - characteristics of the family. Transmissible gastroenteritis in pigs (TGE) and other coronavirus infections in swines.
10. Coronavirus infections in calves, poultry, dogs and cats.
11. Arteriviridae -characteristics of the family. Diseases in pigs and horses.
12. Rhabdoviridae - characteristics of the family. Representatives.
13. Rabies – characteristics of the causative agents, epidemiological features, clinical signs. Diagnostics. Prevention.
14. Orthomyxoviridae - characteristics of the family. Swine influenza viruses.
15. Avian and equine influenza viruses.
16. Paramyxoviridae- characteristics of the family. Parainfluenza viruses in ruminants and dogs.
17. Paramyxoviruses. Newcastle Disease (Avian Paramyxovirus 1 infection).
18. Morbillivirus infections in cattle and dogs (Rinderpest and Canine Distemper) .
19. Pneumoviridae-characteristics of the family. Representatives.
20. Bunyavirales -characteristics of the Order. Family Hantaviridae.  
Family Nairoviridae.
21. Bunyavirales-characteristics of the Order. Family Phenuiviridae. Family Peribunyaviridae.
22. Reoviridae - characteristics of the family. Bluetongue. African horse sickness.
23. Reoviruses. Rotaviral enteritis in different animals.
24. Bunyaviridae- characteristics of the family. Infectious bursal disease (Gumboro)
25. Retroviridae- characteristics of the family, structure of the genome, replication.  
Retroviral infections in birds.
26. Retroviral infections in cattle, small ruminants and cats.
27. Parvoviridae- characteristics of the family. Porcine parvovirus infection.

28. Parvovirus infections in dogs, cats and geese.
29. Circoviridae -characteristics of the family. Representatives.
30. Anelloviridae- characteristics of the family. Chicken Anemia Virus Infection.
31. Polyoma - and papillomaviridae - characteristics of the families. Representatives.
32. Adenoviridae - characteristics of the family. Adenoviral infections in birds and ruminants.
33. Adenovirus infections in dogs (Infectious hepatitis, Infectious laryngotracheitis) .
34. Herpesviridae- characteristics of the family. Herpesvirus infections in cattle.
35. Herpesvirus infections in pigs, horses and birds.
36. Poxviridae - characteristics of the family. Myxomatosis in rabbits. Swine pox viral infection.
37. Poxvirus infection in cattle and small ruminants. Poxvirus infection in birds.
38. African swine fever -characteristics of the causative agent. Clinical forms of the disease.
39. Prions -characteristics. Classification of transmissible encephalopathies in animals.
40. Prions- diseases in cattle and sheep ( "Mad cow" and Scrapie).

Prepared by:

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Chief of a Department .....  
(Assoc. prof. Stanislav Radanski, PhD)

## Syllabus for the practical examination over the subject "Virology"

1. Structure of virological laboratory. Types. Measures for a safety work with viruses.
2. Cell cultures. Method for the preparation of trypsinized cell cultures.
3. Cell cultures. Types.
4. Cytopathic effect and inclusions. Examples.
5. Cultivation of the viruses in laboratory animals and chicken embryos.
6. Virus neutralization (VN). Types.
7. Immunodiffusion methods for diagnostics of viral diseases.
8. Hemagglutination (HA). Examples. Hemadsorption.
9. Haemagglutination Inhibition Test, (HAI).
10. Complement fixation test (CFT).
11. Immunofluorescence methods. Principles and types.
12. Enzyme-linked immunosorbent assay- ELISA.
13. Polymerase chain reaction (PCR).
14. Genetic methods. DNA analysis, restriction analysis and fingerprinting.
15. Monoclonal antibodies. Preparation and their use for the diagnostics of viral infections.

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