Information for students who have passes in disciplines:

Fundamentals of Molecular Biology and

Modern methods of investigation biological systems

The student needs to prepare 4 presentations from different topics for the discipline and send presentations to the e-mail of the Department of Veterinary Medicine: **vetpharm@nuph.edu.ua**

In the file name write your First Name and Last Name, group number.

The topic for presentations:

Fundamentals of Molecular Biology

1. Classification of human diseases according to the International Classification of Diseases.
2. Fluorimetry: definition, principle of the method, equipment, field of application in medicine.
3. Application of electrophoresis in clinical and diagnostic studies
4. Electrophoresis: definition, principle of the method, types, field of clinical and laboratory use.
5. Polarography: definition, equipment, implementation options, field of clinical and laboratory use.
6. Potentiometry: definition, principle of the method, equipment, field of application in medicine.
7. Application of optical methods in medicine
8. Application of luminescent methods in medicine
9. Immunoelectrophoresis
10. Radioimmunoelectrophoresis
11. Application of electrochemical methods in medicine
12. Methods of measuring blood pressure.
13. Characteristics of the methods used to assess the mechanical parameters of the respiratory system: spirography,
14. Characteristics of the methods used to assess the mechanical parameters of the respiratory system of pneumotachography.
15. Characteristics of the methods of complex research of mechanical manifestations of the vital activity of the organism: polycardiography,
16. Characteristics of the methods of complex research of the mechanical manifestations of the vital activity of the body in bicycle ergometry.

17. Basic methods of medical imaging: classification

18. X-ray methods of medical imaging: types, field of application, principle of action

19. Fluorography: definition, principle of the method, equipment, field of application in medicine.

20. Digital standard mammographic examination: definition, principle of the method, equipment, field of application in medicine.

21. Types of tomography.

22. Ultrasound tomography: definition, principle of the method, equipment, field of application in medicine.

23. X-ray computed tomography: definition, principle of the method, equipment, field of application in medicine.

24. Ultrasound methods of medical imaging. Ultrasound: definition, principle of the method, equipment, field of application in medicine.

25. Optical (laser) methods of medical imaging. Optical tomography: definition, principle of the method, equipment, field of application in medicine.

26. Magnetocardiography: definition, principle of the method, types, field of clinical and laboratory use.

27. Magnetoencephalography: definition, principle of the method, types, field of clinical and laboratory use.

28. Magnetoretinography: definition, principle of the method, types, field of clinical and laboratory use.

29. Application of magnetotherapy in medicine.

30. Application of nanotechnology in medicine.

31. Electron microscopy.

32. Biophysical nanotechnologies in the diagnosis of diseases.

33. Genomics: diagnosis of hereditary diseases.

34. Proteomics: high-throughput functional analysis of proteins.

35. Immunochemical analysis.

36. Metabolomics: a post-genomic scientific discipline.

37. Nanomedicine: origins and realities.

38. Nanorobots: the future triumph for humanity.

39. Laboratory on a chip (lab-on chip).

40. Nanomaterials in medicine.

Modern methods of investigation biological systems

Practical lesson2

Topic 2. Methodology for the development of living systems. The structure of medical and biological studies.

1. Classification of illnesses of people for the ICC (to the international classifier of illnesses).

Topic 3. Physical and chemical research methods.

2. Fluorimetry: designation, principle of method, equipment, zastosuvannya in medicine.

3. Stopping electrophoresis in clinical and diagnostic studies

4. Electrophoresis: designation, the principle of the method, you see, the corner of the clinical and laboratory victoria.

5. Electrophoresis of proteins.

6. Polarography: appointment, equipment, options for carrying out, clinical and laboratory victoria blind.

7. Nephelometry: designation, principle to method, possession, blindness in medicine.

8. Lipid electrophoresis,

9. Electrophoresis of hemoglobins,

10. Electrophoresis of isoenzymes.

11. Nucleic acid electrophoresis

12. Potentiometry: purpose, principle to method, possession, blindness in medicine.

13. Coulometriya: designation, principle of method, possession, blindness in medicine.

14. Denial of optical methods in medicine

15. Promotion of luminescent methods in medicine

16. Immunoelectrophoresis

17. Radioimmunoelectrophoresis

18. Stagnation of electrochemical methods in medicine

Topic 4. Follow-up of mechanical manifestations of human life. Mechanically show the vitality of the human body: see, vivchennya during functional diagnostics of biological systems.

19. Characteristics of mechanocardiography methods: apexcardiography,

20. Characteristics of the methods of mechanocardiography and ballistocardiography,

21. Characteristics of the methods of mechanocardiography, dynamocardiography,

22. Characteristics of the methods of mechanocardiography, kinetocardiography,

23. Characteristics of the methods of mechanocardiography and sphygmography,

24. Characteristics of the methods of mechanocardiography, phlebosphygmography,

25. Characteristics of the methods of mechanocardiography of mechanical plethysmography.

26. Methods of vimiryuvannya bloody vice.

27. Characteristics of the methods used to assess the mechanical parameters of the respiratory system: sporography,

28. Characteristics of the methods used to assess the mechanical parameters of the respiratory pneumotachography system.

29. Characteristics of the methods of complex follow-up of mechanical manifestations of the vitality of the body: polycardiography,

30. Characteristics of the methods of comprehensive follow-up of mechanical manifestations of the vitality of the body of bicycle ergometry.

Practical lesson 3

Topic 5. Medical visualization. Introduction to diagnostics.

1. Electromagnetic Viprominity: characteristics and features.

2. Biological action of electromagnetic fields and their influx on the human body.

3. Physical fields of biological objects, selection of physical fields for remote medical diagnostics.

Topic 6. Basic methods of medical imaging. Medical visualization: vision.

4. Main methods of medical imaging: classification

5. X-ray methods and medical visualization: see, blindness, the principle of dividing

6. X-ray: purpose, principle of method, possession, blindness in medicine.

7. Fluoroscopy: - designation, principle of method, possession, blindness in medicine.

8. Fluorography: designation, principle of method, possession, blindness in medicine.

9. Digital fluorography: designation, principle to method, possession, blindness in medicine.

10. Digital standard mamographic research: designation, principle to method, possession, blindness in medicine.

11. Classification of tomography.

12. Ultrasonic tomography: designation, principle of method, possession, blindness in medicine.

13. Radionuclide emisional tomography (γ - viprominuvannya): significance, principle of method, possession, folly of zastosuvannya in medicine.

14. Single-photon emission tomography (SPECT): designation, principle of the method, possession, challenge in medicine.

15. Two-photon emission or positron emission (PET): purpose, principle of the method, possession, blindness in medicine.

16. X-ray computer tomography (CT, CT): purpose, principle of method, possession, blindness in medicine.

17. Magnetic resonance imaging (MRI): designation, principle of method, possession, challenge in medicine.

18. Computed tomography: designation, principle to method, possession, blindness in medicine.

19. Ultrasound methods of medical imaging. Ultrasound: purpose, principle of the method, possession, blindness in medicine.

20. Optical (laser) methods and medical imaging. Optical tomography (OT): designation, principle to method, possession, vision in medicine.

21. Medical thermography. The principles of the thermographic method are extended to varying degrees of varying range.

Practical lesson 3

Topic 7. Development of methods for registering magnetic fields, which are modified by bioobjects.

1. Human magnetic fields.
2. Nature of biomagnetic fields.
3. Magnetocardiography: designation, principle of the method, see, the hall of the clinical and laboratory victoria.
4. Magnetoencephalography: designation, principle of the method, see, the hallucination of clinical and laboratory victoria.
5. Magnetoretinografiya: designation, principle of the method, see, the hallucine of clinical and laboratory victoria.
6. Feromagnetic parts in organisms.
7. Magnetic fields of internal organs, shkiri, m'yaziv, eyes.
8. Neuromagnetic fields.
9. Denial of magnetic therapy in medicine.

Topic 8. New biophysical methods for researching biological systems.

10. The development of nanotechnologies in medicine.
11. Structural studies of folding biosystems at the sub-nanometer level.
12. Electron microscopy.
13. Biophysical nanotechnologies in the diagnosis of diseases.
14. Genomics: diagnostics of recessive diseases.
15. Proteomics: highly productive functional analysis of proteins.
16. Diagnosis of illnesses using additional technology "laboratory on a chip".

Practical lesson 5

Topic 9. Modern nanodiagnostics: multiplex analysis, laboratory-on-a-chip technology.

1. Biochips. Spheres for placing biochips
2. Multiplex analysis.
3. Biochips for multiplex analysis of DNA, enzymes and other proteins.
4. Immunochemical analysis.
5. Metabolomics: postgenomic science discipline.
6. Technology "laboratory on a chip".

Topic 10. Introduction to nanotechnologies in diagnostics and analysis.

7. Nanomedicine: turns and realities.
8. Nanorobots: future triumph for the people.
9. Laboratory on a chip (lab-on chip).

10. Whispers of nanotechnology in diagnostics and analysis: Nanoparticles.

11. Whispers of nanotechnologies in diagnostics and analysis: Nanoshells

12. Whispers of nanotechnologies in diagnostics and analysis: Quantum dots.

13. Nanotechnologies in diagnostics and analysis: Nanosensors.

14. Nanotechnologies reference in diagnostics and analysis: Faces and sorbents based on nanotechnologies

15. Nanomaterials in medicine

16. The use of nanotechnologies in diagnostics and analysis: Neuroelectronic interfaces. Delivery systems for medicinal products.

17. Alternative nanotechnologies in diagnostics and analysis: Acoustic bombs. Nanobiotics. Liposomes.

18. Use of nanotechnologies in diagnostics and analysis: Prostheses, implants, piece organs.

19. Nanotechnology research in diagnostics and analysis: Diagnostics, monitoring, biosensors.