

**SYLLABUS OF THE EDUCATIONAL COMPONENT
«CLINICAL PATHOPHYSIOLOGY»**

Specialty: **221 "Dentistry"**

Educational and professional program: "Dentistry"

Component code in the educational program: **EC 35**

Level of higher education: second (master's)

Form of education: full-time (full-time)

Year of study: 3

Semester(s): 6

Type of educational component: elective

Academic year: 2026-2027

Amount: **3 ECTS credits (90 hours)**

Training sessions: practical sessions

Final control: credit

Prerequisites: knowledge in normal anatomy and physiology, pathological anatomy, pathological physiology, medical biology, microbiology, medical informatics, fundamentals of biophysics, biochemistry, medical genetics, pharmacology, epidemiology and principles of evidence-based medicine, emergency and urgent medical care, history of medicine, philosophy.

Department/division: Department of General and Clinical Pathophysiology named after D.O. Alpern, Nauky Ave., 4, main building, 4th floor

Head of the educational component: Prof. Myroshnychenko Mykhailo Serhiyovych,
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Educational component page in the KhNMU Distance Learning System (Moodle):

<https://distance.knu.edu.ua/course/view.php?id=6789>

DESCRIPTION OF THE EDUCATIONAL COMPONENT

Clinical Pathophysiology (elective course) is a component (third section) of the educational component "Clinical Pathophysiology", which provides application of knowledge acquired by students while studying basic pathological physiology in practical work in a hospital setting in order to deepen and systematize knowledge in the field of current topics of pathophysiology of organs and systems

Subject. The educational component consists of general patterns, primarily of a functional nature, that study the course of the disease, mechanisms of resistance, recovery, and termination of the disease.

GOAL OF COURSE: training of students in a complex of medical knowledge for a better understanding of the mechanisms of the emergence and development of pathological changes that occur in a sick organism.

LEARNING OUTCOMES:

- To identify and identify the leading clinical symptoms and syndromes; using standard methods, using preliminary data from the patient's history, patient examination data, knowledge about the person, his organs and systems, to establish a probable nosological or syndromic preliminary clinical diagnosis of a dental disease.
- Collect information about the patient's general condition, assess the patient's psychomotor and physical development, the condition of the maxillofacial organs, and evaluate information regarding the diagnosis based on the results of laboratory and instrumental studies.
- To prescribe and analyze additional (mandatory and optional) examination methods (laboratory, radiological, functional and/or instrumental) for patients with diseases of the organs and tissues of the oral cavity and maxillofacial region for differential diagnosis of diseases.
- Diagnose emergencies in any circumstances (at home, on the street, in a medical facility), in conditions of emergency, martial law, lack of information, and limited time.

- Determine tactics for providing emergency medical care, using recommended algorithms, under any circumstances based on the diagnosis of an emergency condition in a time-limited setting.
- Analyze and evaluate government, social, and medical information using standard approaches and computer information technologies.
- Assess the impact of the environment on the health of the population in a medical facility using standard methods.
- Follow a healthy lifestyle, use self-regulation and self-control techniques.
- To comply with the requirements of ethics, bioethics and deontology in their professional activities.
- Organize the necessary level of individual safety (one's own and those in one's care) in the event of typical dangerous situations in one's individual field of activity.
- Perform emergency medical care procedures using standard procedures under any circumstances based on an emergency diagnosis in a time-limited setting

CONTENT OF THE EDUCATIONAL COMPONENT

List of topics of practical classes (30 hours):

1. Typical metabolic disorders. Diabetes mellitus.
2. Pathophysiology of the blood system. Erythrocytosis. Anemia. Leukocytosis, leukopenia. Leukosis.
3. Pathophysiology of the circulatory system. Heart failure. Arrhythmias. Coronary damage to the myocardium. Myocardial infarction. Arterial hypertension and hypotension.
4. Pathophysiology of the digestive system and liver.
5. Pathophysiology of the kidneys and urinary system. Renal failure.
6. Extreme conditions: shock, coma, collapse. Pathophysiology of modern combat trauma.

List of topics for student independent work (60 hours)

1. Pathogenic effect of mechanical trauma on the body.
2. Pathogenic effect of thermal injury on the body.
3. Pathogenic effect of changed atmospheric pressure on the body.
4. Pathogenic effect of ionizing radiation on the body.
5. Pathogenic effect of electrical trauma on the body.
6. Pathogenic effect of chemical factors on the body.
7. Pathogenic effect of biological factors on the body.
8. The role of heredity and constitution in pathology.
9. Pathology of reactivity in the body.
10. Impaired immunological reactivity. Immunodeficiency states.
11. Autoimmune reactions and diseases.
12. Pathophysiology of connective tissue.
13. Allergy.
14. Pathophysiology of the cell. Cell damage.
15. Impaired peripheral circulation and microcirculation.
16. The role of inflammation in pathology.
17. Fever.
18. Tumors.
19. Hypoxia.
20. Starvation.

21. Disturbances of water and electrolyte balance. Edema.
22. Acid-base disorders. Acidosis. Alkalosis.
23. Violation of protein metabolism.
24. Disturbance of fat metabolism.
25. Violation of the metabolism of vitamins and trace elements.
26. Pathophysiology of the hemostasis system.
27. Violation of the physicochemical properties of blood.
28. Violation of the functional state of the external respiratory system. Respiratory failure.
29. Pathophysiology of the endocrine system.
30. Pathophysiology of the nervous system.

Consultations: face-to-face consultations: by prior arrangement; online consultations: platform according to schedule.

Teaching methods: practical classes (Clinical analysis of the medical history. Discussion, case method, method "Brainstorming, ECG, results of laboratory and instrumental studies, interdisciplinary training and others); independent work of students with literature, preparation of abstracts. Analysis of the results of clinical and laboratory studies of the patient.

EVALUATION

Current educational activities (CEA). Assessment of the success of education seekers is carried out in accordance with the Instructions for assessing the educational activities of higher education seekers at KhNMU (<https://knmu.edu.ua/documents/normatyvni-dokumenty-navchalnogo-proczesu/>). The grade for a practical or final lesson is from 2 to 5 points. Submitting assignments late for unwarranted reasons entails a reduction in the grade in accordance with the percentage of lateness in time from the time of completing the assignment. Assignments are checked within 24 hours. Grades are posted in the electronic journal. Unsatisfactory grades are worked out in accordance with the Regulations on the procedure for working out academic classes by students of KhNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_vidprac_zaniat.pdf).

At the end of the semester, the semester average grade is converted into a multiple-point grade (120–200 points) in accordance with Table 2 of the Assessment Instructions (see above). The arithmetic average of the CEA for both semesters constitutes the total learning activity (TLA).

Individual tasks (IT) are rated up to 10 points.

Final control: The applicant is given a grade according to the traditional 4-point system: "excellent", "good", "satisfactory" and "unsatisfactory".

Discipline assessment (DA). DA = Arithmetic mean (CEA + IT).

Appealing the results of the final control is carried out in accordance with the procedure established at KhNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_apel_kontrol.pdf).

SELECTIVE COMPONENT POLICIES

Recommendations for course work: actively participate in all forms of work in classes, devote 1-2 hours daily to independent work and preparation for classes, ask questions during classes, attend consultations, submit assignments on time, and complete all forms of control.

Attending classes. Attendance at practical classes is mandatory. The uniform for offline classes is a white medical gown. If you are more than 5 minutes late, you may not be allowed to attend the class. Missed classes are made up in accordance with the Regulations on the Procedure for Students of KhNMU to Complete Academic Classes (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_vidprac_zaniat.pdf).

Academic integrity. KhNMU has a zero tolerance policy towards academic dishonesty. Any violation of the principles of academic integrity entails liability in accordance with the procedure established at KhNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_ad-1.pdf).

Use of electronic gadgets and artificial intelligence tools is allowed only with the permission of the teacher.

Policy on individuals with special educational needs. Applicants with special educational needs should contact a teacher to develop an individual educational trajectory.

Teacher response time: 24 hours.

Technical requirements for working on the course:

- access to a computer, laptop, tablet or smartphone
- corporate Google account with your own photo
- skills in working with Google Workspace (Google Meet, Docs, Sheets, Slides, Forms) and Moodle

Technical support: ASU (ev.shevtsov@knmu.edu.ua), Google (tehotdelknmu@gmail.com), Moodle (al.korol@knmu.edu.ua)

RECOMMENDED SOURCES

Basic

1. Banasic, J. L. Pathophysiology :3 / J. L. Banasic, L-E. C. Copstead. - 6th ed. - St. Louis : Elsevier, 2019. - XXII, 1177 p.
2. Pathophysiology : textbook / N. V. Krishtal, V. A. Mikhnev, N. N. Zayko [et al.] ; ed.: N. V. Krishtal, V. A. Mikhnev. - 2nd ed., corrected. - Kyiv : AUS Medicine Publishing, 2018. - 656 p.
3. Roberts, Fiona. Pathology Illustrated : учебный посібник / F. Roberts, E. MacDuff ; ed.: F. Roberts, E. MacDuff ; ill.: R. Callander, I. Ramsden. - 8th ed., international. - Edinburgh ; London : Elsevier, 2019. - XII, 714 p.
4. Simeonova, N. K. Pathophysiology / N. K. Simeonova = Патофізіологія / Н. К. Сімеонова; за наук. ред. В. А. Міхньова : підручник. 1 - 3rd ed. - Kyiv : AUS Medicine Publishing, 2017. - 544 p.
5. General and Clinical Pathophysiology / A. V. Kubyshkin, A. I. Gozhenko, V. F. Sagach [et al.]; ed. A. V. Kubyshkin = Загальна та клінічна патофізіологія / ред. А. В. Кубишкін : [textbook]. - 3th ed. - Vinnytsya : Nova Knyha Publ., 2017. - 656 p.

Auxiliary

1. Gary D. Hammer, Stephen J. McPhee. Pathophysiology of Disease: An Introduction to Clinical Medicine. - 8th Edition. - McGraw-Hill Education, 2019.
2. <https://accessmedicine.mhmedical.com/book.aspx?bookid=2468>
3. Pathophysiology of Blood Disorders / ed.: J. C. Aster, H. F. Bunn. - 2nd Edition. - McGraw-Hill Education, 2020.
4. <https://accessmedicine.mhmedical.com/book.aspx?bookid=1900>
5. Reisner Howard M. Pathology: A Modern Case Study. - 2nd Edition. - McGraw-Hill Education, 2020.
6. <https://accessmedicine.mhmedical.com/book.aspx?bookid=2748>
7. Huppert's Notes: Pathophysiology and Clinical Pearls for Internal Medicine / ed.: L. A. Huppert, T. G. Dyster. - McGraw-Hill Education, 2021.
8. <https://accessmedicine.mhmedical.com/Book.aspx?bookid=3072>
9. Essentials of Pathology / Ya. Bodnar, A. Romanyuk, V. Voloshyn [та ін.]. - Kharkiv : Planeta-Print LTD, 2020. - 219 p.
10. Banasic, Jacquelyn L. Study Guide for Pathophysiology: учебный посібник / J. L. Banasic. - 6th ed. - St. Louis : Elsevier, 2019. - XIII, 247 p.

11. First Aid For The USMLE Step 1 2019 : a student-to-student guide / T. Le, V. Bhushan, M. Sochat [et al.]. - 29th ed. - New York ; Chicago : McGraw Hill Education, 2019. - XXII, 792 p.

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