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Khanty-Mansiysk Autonomous Okrug-Ugra  
"Surgut State University"

Approved by  
Deputy Rector for Academic Affairs

\_\_\_\_\_ E. V. Konovalova

13 June 2024, Record №5

# Clinical Pathophysiology Syllabus

Department **Pathophysiology and General Pathology**

Curriculum s310501-ЛечДелоИИ-24-4.plx  
Specialty 31.05.01 General Medicine

Qualification **General Practitioner**

Form of education **Full-time**

Total (in credits) **2**

Total academic hours **72**

including:

Practical classes **48**

Self-study **24**

Control:

Credit, 7<sup>st</sup> term

## Course outline in terms

Academic year (Term)	7 (4.1)		Total	
Weeks	17			
Types of classes	Cur	Syl	Cur	Syl
Lectures	16	16	16	16
Practical classes	32	32	32	32
Contact	48	48	48	48
Self-study	24	24	24	24
Total	72	72	72	72

The Syllabus is compiled by:

*PhD in Biological Sciences (Biology), Senior Lecturer, Kavushevskaya N.S*

The Syllabus

## **Clinical Pathophysiology**

Developed in accordance with Federal State Educational Standard:

Federal State Educational Standard of higher education in the specialty 31.05.01 General medicine (Order of the Ministry of Education and Science of the Russian Federation on 12.08. 2020 № 988

Based on the Curriculum:

31.05.01 GENERAL MEDICINE

Specialization: General Medicine

Approved by the Academic Council of Surgut State University, 13.06.2024 Record № 5.

The Syllabus was approved by the Department

## **Pathophysiology and General Pathology**

Head of Department, Doctor of Medicine, Professor Kovalenko L.V.

<b>1. COURSE OBJECTIVES</b>	
1.1	The <b>aim</b> Study of general patterns and specific pathophysiological mechanisms of occurrence, clinical development and outcomes of pathological processes, conditions, individual diseases and to develop practical skills for assessing morphofunctional, physiological conditions and pathological processes in the human body, the principles of their identification, pathogenetic treatment and prevention.

<b>2. COURSE OVERVIEW</b>	
Course code (in curriculum)	E1.O.04.01
<b>2.1</b>	<b>Assumed background:</b>
2.1.1	Anatomy
2.1.2	Chemistry
2.1.3	Biology
2.1.4	Microbiology, virology
2.1.5	Normal physiology
2.1.6	Biochemistry
<b>2.2</b>	<b>Post-requisite courses and practice:</b>
2.2.1	Obstetrics and gynecology
2.2.2	Faculty surgery, urology
2.2.3	Hospital therapy, endocrinology
2.2.4	Traumatology, orthopedics
2.2.5	Hospital surgery, pediatric surgery
2.2.6	Oncology, radiation therapy
2.2.7	Faculty therapy, occupational diseases

<b>3. COMPETENCES UPON COMPLETION OF THE COURSE (MODULE)</b>	
<b>GPC-5.6. Demonstrates knowledge and skills to identify: the structure of the human body, morphological macro- and microscopic parameters in pathology; diagnose criteria of general pathological pathophysiological processes in various nosologies; on the basis of which he/she possesses skills in topographic anatomy and is able to solve questions of operative surgery;</b>	
<b>GPC-5.8 Demonstrates understanding of mechanisms of development of general pathological processes, knowledge of issues of pathogenesis of various human diseases and pathological conditions, ability to identify the leading links of pathogenesis in their relationship in a particular disease or pathological condition and on this basis the ability to justify effective pharmacotherapy;</b>	
<b>GPC-5.9 Demonstrates knowledge of the theoretical foundations of immunology and allergology, understanding of immune defense mechanisms, types of immunological reactions and their role in the pathogenesis of human disease;</b>	
<b>GPC-5.10. Demonstrates knowledge of the etiology and pathogenesis of diseases, which is necessary to assess physiological state and pathological processes in order to diagnose treatment and prevention of diseases.</b>	
<b>PC-9.1 Analyzes medical information</b>	
<b>PC-9.2 Presents medical information based on evidence-based medicine</b>	
<b>PC-10.1 Participates in the introduction of new methods and techniques aimed at protecting the health of citizens</b>	

**By the end of the course students must:**

<b>3.1</b>	<b>Know:</b>
3.1.1	the specifics of the subject and objectives of the discipline pathophysiology, clinical pathophysiology;
3.1.2	about the role, place and connection with other sciences in the system of biological and medical disciplines;
3.1.3	the main historical stages in the development of pathophysiology, clinical pathophysiology;
3.1.4	about the prospects for the development of science and new directions in the study of pathophysiology, clinical pathophysiology;

3.1.5	basic concepts used in pathophysiology, clinical pathophysiology;
3.1.6	general patterns of development and manifestation of various pathological reactions, processes, conditions and individual diseases;
3.1.7	mechanisms of formation of pathological systems and disturbances of the information process when the body is exposed to various pathological agents;
3.1.8	patterns of development of basic pathological conditions, symptoms, syndromes, diseases, as well as mechanisms of recovery of various diseases;
3.1.9	mechanisms of formation of pathological systems and disturbances of the information process when the body is exposed to various pathological agents.
<b>3.2</b>	<b>Be able to:</b>
3.2.1	use acquired knowledge in pathophysiology, clinical pathophysiology when studying other biomedical and clinical disciplines;
3.2.2	correctly interpret and apply the basic concepts of pathophysiology, clinical pathophysiology when studying biomedical and medical literature and when working together with medical specialists;
3.2.3	analyze pathological processes and individual diseases at various structural and morphofunctional levels;
3.2.4	conduct clinical and pathogenetic parallels of leading pathological syndromes;
3.2.5	conduct a pathophysiological analysis of clinical, laboratory, experimental and other data and formulate on their basis a conclusion about the possible causes and mechanisms of development of pathological processes (diseases);
3.2.6	carry out differential diagnosis between pathological conditions based on drawing up pathogenesis diagrams;
3.2.7	justify the pathogenetic approach to the treatment of the pathological process (disease);
3.2.8	analyze the role of causes, conditions, reactivity of the body in the occurrence, development and completion (outcome) of diseases;
3.2.9	analyze the etiology, pathogenesis, manifestations and outcomes of the most common forms of pathology of organs and physiological systems, the principles of their etiological and pathogenetic therapy.

**4. STRUCTURE AND CONTENTS OF THE COURSE (MODULE)**

<b>Class Code</b>	<b>Topics /Class type</b>	<b>Term / Academic year</b>	<b>Academic hours</b>	<b>Competences</b>	<b>Literature</b>	<b>Notes</b>
1.1	Systemic inflammatory response syndrome. Sepsis. /Lec/	7	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.2	Pathophysiology of the infectious process. Inflammation. SIRS. Sepsis./Pr/	7	4	GPC-5.6 GPC-5.8	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.3	Pathophysiology of the infectious process. Inflammation. SIRS. Sepsis. /Self. study/	7	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.4	Pathophysiology of the pulmonary system. DN.RDSV /Lec/	7	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.5	Pathophysiology of the pulmonary system. DN. RDSV. RDSN. PE Airway obstruction syndrome /Pr/	7	4	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.6	Pathophysiology of the pulmonary system. DN. RDSV. RDSN. PE Airway obstruction syndrome //Self. study/	7	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.7	Pathophysiology of hemostasis. DIC syndrome /Lec/	7	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.8	Pathophysiology of hemostasis. Thrombohemorrhagic syndromes. DIC syndrome. Thrombophilia./Pr/	7	4	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.9	Pathophysiology of hemostasis. Thrombohemorrhagic syndromes. DIC syndrome. Thrombophilia /Self. study/	7	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	

1.10	Bleeding and blood loss. Posthemorrhagic anemia. /Lec/	7	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.11	Bleeding and blood loss. Hemorrhagic shock Posthemorrhagic anemia /Pr/	7	4	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.12	Bleeding and blood loss. Hemorrhagic shock Posthemorrhagic anemia /Self. study/	7	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.13	Pathophysiology of the liver. Hepatorenal syndrome. Uremia /Lec/	7	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.14	Kidney and liver failure. Hepatorenal syndrome. Hepatic coma. Uremia./Pr/	7	4	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.15	Kidney and liver failure. Hepatorenal syndrome. Hepatic coma. Uremia /Self. study/	7	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.16	Types of Shock. Pathogenesis, clinical picture, treatment /Lec/	7	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.17	Shock. Kinds. Pathogenesis, clinical picture, treatment /Pr/	7	4	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.18	Shock. Kinds. Pathogenesis, clinical picture, treatment /Self. study/	7	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2 PC-10.1	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.19	Types of disturbances of consciousness. Types of com. Pathogenesis, manifestations /Lec/	7	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10 PC-9.1 PC-9.2	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	

				<b>PC-10.1</b>		
1.20	Main types of disorders of consciousness. Classification of com. Types of com. Types of disturbances of consciousness /Pr/	7	4	<b>GPC-5.6</b> <b>GPC-5.8</b> <b>GPC-5.9</b> <b>GPC-5.10</b> <b>PC-9.1</b> <b>PC-9.2</b> <b>PC-10.1</b>	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.21	Main types of disorders of consciousness. Classification of com. Types of coma. Types of disturbances of consciousness. /Self. study/	7	3	<b>GPC-5.6</b> <b>GPC-5.8</b> <b>GPC-5.9</b> <b>GPC-5.10</b> <b>PC-9.1</b> <b>PC-9.2</b> <b>PC-10.1</b>	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.22	Multiple organ failure syndrome /Lec/	7	2	<b>GPC-5.6</b> <b>GPC-5.8</b> <b>GPC-5.9</b> <b>GPC-5.10</b> <b>PC-9.1</b> <b>PC-9.2</b> <b>PC-10.1</b>	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.23	Multiple organ failure syndrome /Pr/	7	4	<b>GPC-5.6</b> <b>GPC-5.8</b> <b>GPC-5.9</b> <b>GPC-5.10</b> <b>PC-9.1</b> <b>PC-9.2</b> <b>PC-10.1</b>	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.24	Multiple organ failure syndrome /Self. study/	7	3	<b>GPC-5.6</b> <b>GPC-5.8</b> <b>GPC-5.9</b> <b>GPC-5.10</b> <b>PC-9.1</b> <b>PC-9.2</b> <b>PC-10.1</b>	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	
1.25	/Control work./	7	0	<b>GPC-5.6</b> <b>GPC-5.8</b> <b>GPC-5.9</b> <b>GPC-5.10</b> <b>PC-9.1</b> <b>PC-9.2</b> <b>PC-10.1</b>	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	Essay
1.26	Test /Credit/	7	0	<b>GPC-5.6</b> <b>GPC-5.8</b> <b>GPC-5.9</b> <b>GPC-5.10</b> <b>PC-9.1</b> <b>PC-9.2</b> <b>PC-10.1</b>	L1.1 L1.2 L1.3L2.1 L2.2 L2.3L3.1 L3.2 E1 E2	Question for oral quiz  Situation task

5. ASSESSMENT TOOLS				
5.1. Assessment tools for midterm assessment				
Presented by a single document				
5.2. Assessment tools for diagnostic testing				
Presented by a single document				

6.COURSE (MODULE) RESOURCES				
6.1. Recommended Literature				
6.1.1. Core				
	Authors	Title	Publish., year	Quantity
L 1.1	П. Ф. Литвицкий, С. В. Пирожков, Е. Б. Тезиков	Clinical pathophysiology: concise lectures, tests, cases = Клиническая патофизиология : курс лекций, тесты, задачи : учебное пособие для студентов учреждений высшего образования	Москва : ГЭОТАР- Media - electronic resource	2
L 1.2	Litvitsky P.F.	Pathophysiology. In 2 vols. T. 1: Ministry of Education and Science of the Russian Federation Recommended by the State Budgetary Educational Institution of Higher Professional Education "First Moscow State Medical University named after I.M. Sechenov" as a textbook for students of institutions of higher professional education studying in specialties 060101.65 "General Medicine", 060103.65 "Pediatrics" in the discipline "Patophysiology, Clinical Pathophysiology", in the specialty 060105.65 "Medical and Preventive Care" in the discipline "Patophysiology"	Москва: Юрайт, 2022, electronic resource	2
L 1.3	Loginova A. K.	Imageology	Sankt-Peterburg: Lan', 2022, electronic resource	2
6.1.2. Supplementary				
	Authors	Title	Publish., year	Quantity
L 2.1	Poryadin G.V.	Pathophysiology: course of lectures: textbook	Moscow: GEOTAR- Media, 2018, , electronic resource	1

L 2.2	Barsukov V. Selezneva T.	Pathological physiology: Textbook	Saratov: Scientific book, 2019, electronic resource	2
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6.1.3. Methodical development				
	Authors	Title	Publish., year	Quantity
L 3.1	Dolgikh V. T., Korpacheva O. V.	Pathophysiology. Immunology. Tests: Study Guide	Moscow: Yurait Publishing House, 2019, electronic resource	1

6.2. Internet resources				
E 1	Clinical pathophysiology. Journal "Pathological Physiology and Experimental Therapy" <a href="http://www.niiopp.ru/jpathphys/">http://www.niiopp.ru/jpathphys/</a>			
E 2	Clinical pathophysiology. Journal "Pathogenesis" <a href="http://www.niiopp.ru/pathogenesis/">http://www.niiopp.ru/pathogenesis/</a>			
E 3	Clinical pathophysiology. Russian Medical Journal <a href="http://www.rmj.ru/main.htm">http://www.rmj.ru/main.htm</a>			



E 4	Clinical pathophysiology. Pathology archive. <a href="http://www.medlit.ru/medrus/arhpat.htm">http://www.medlit.ru/medrus/arhpat.htm</a> .
<b>6.3.1 Software</b>	
6.3.1.1	Operational system Microsoft, applied programs pack Microsoft Office
<b>6.3.2 Information Referral systems</b>	
6.3.2.1	<a href="http://www.garant.ru">http://www.garant.ru</a> "Garant"
6.3.2.2	<a href="http://www.consultant.ru">http://www.consultant.ru</a> "Consultant Plus"

<b>7. MATERIAL AND TECHNICAL SUPPORT OF DISCIPLINE (MODULE)</b>	
7.1	Classrooms for conducting lecture-type classes, seminar-type classes (practical classes), group and individual consultations, ongoing monitoring and intermediate certification are equipped with: standard educational furniture, technical teaching aids used to present educational information