

Документ подписан простой электронной подписью  
 Информация о владельце:  
 ФИО: Косенок Сергей Михайлович  
 Должность: ректор  
 Дата подписания: 18.07.2025 07:05:19  
 Уникальный программный ключ:  
 e3a68f3eaa1e62674b54f4998099d3d6bfdcf836

**Budgetary organization of higher education**

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

I APPROVE  
 Vice-Rector for Educational,

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

June 11, 2025, UMS protocol No. 5

**Pathophysiological bases of emergency conditions in the  
 clinic of internal diseases  
 work program of the discipline (module)**

Assigned to the department **Pathophysiology and general pathology**  
 Syllabus s310501-ЛечДелоИн-25-6.plx  
 Specialty: 31.05.01 GENERAL MEDICINE  
 Specialization: General Medicine  
 Qualification **Physician**  
 Form of study **full-time**  
 Total labor intensity **2 ZET**

Hours according to the curriculum 72  
 including:  
 classroom activities 48  
 independent work 24  
 Types of control in term:  
 credits 12

**Distribution of hours of the discipline by**

Semester (<Course>.<Semester in the course>)	12 (6.2)		Total	
	UP	RP	UP	RP
Weeks	18 4/6			
Type of activity	UP	RP	UP	RP
Practical	48	48	48	48
Total aud.	48	48	48	48
Contact work	48	48	48	48
Self study	24	24	24	24
Total	72	72	72	72

Autors:

*Professor, Kovalenko L.V.; Associate Professor: Kavushevskaya N.S.*

Program of the discipline

**Pathophysiological bases of emergency conditions in the clinic of internal diseases**

developed in accordance with the Federal State Educational Standard:

Federal State Educational Standard of Higher Education in the specialty 31.05.01 MEDICAL CARE (Order of the Ministry of Education and Science of Russia dated 09.02.2016 No. 95)

compiled on the basis of the curriculum:

Specialty: 31.05.01 GENERAL MEDICINE

Specialization: General Medicine

approved by the educational and methodological council of the university on 11.06.2025 protocol No. 5.

The work program was approved at the department meeting

**Pathophysiology and general pathology**

Head of the Department, Professor L.V. Kovalenko

### 1. OBJECTIVES OF MASTERING THE DISCIPLINE

1.1	The aim of the elective course "Pathophysiological Foundations of Emergency Conditions in the Clinic of Internal Diseases" in higher medical educational institutions is to study the pathogenetic mechanisms of various extreme conditions, as well as their etiology and clinical manifestations. Comparison of pathogenetic and clinical manifestations of various extreme conditions at all stages of their development allows students to acquire the skills of clinical and pathophysiological analysis. Teaching of the course is based on the generalization of scientific material using the achievements of medicine, biology, genetics, immunology, chemistry and physics, as well as modern pathogenetic mechanisms.
-----	--

### 2. PLACE OF DISCIPLINE IN THE STRUCTURE

OOP cycle (section):	FTD.V
<b>2.1 Requirements for preliminary training of the student:</b>	
2.1.1	Clinical pathophysiology
2.1.2	Pathological syndromes in clinical medicine
2.1.3	Pathophysiology
2.1.4	Clinical pathophysiology
2.1.5	Pathological syndromes in clinical medicine
2.1.6	Pathophysiology
<b>2.2 Disciplines and practices for which mastering this discipline (module) is necessary as a prerequisite:</b>	
2.2.1	Hospital therapy, endocrinology
2.2.2	Outpatient therapy
2.2.3	Functional diagnostics
2.2.4	Hospital therapy, endocrinology
2.2.5	Outpatient therapy
2.2.6	Functional diagnostics

### 3. STUDENT COMPETENCES DEVELOPED AS A RESULT OF MASTERING A DISCIPLINE (MODULE)

**OK-1: ability for abstract thinking, analysis, synthesis**

**OPK-9: the ability to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems**

**PC-6: the ability to determine the patient's main pathological conditions, symptoms, disease syndromes, nosological forms in accordance with the International Statistical Classification of Diseases and Related Health Problems, 10th revision**

**PC-11: readiness to participate in providing emergency medical care in conditions requiring urgent medical intervention**

**As a result of mastering the discipline, the student must**

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

3.1.6	- the main concepts used in pathophysiology, clinical pathophysiology;
3.1.7	- general patterns of development and manifestation of various pathological reactions, processes, conditions and individual diseases
3.1.8	- mechanisms of formation of pathological systems and disturbances of the information process when the body is exposed to various pathological agents;
3.1.9	- patterns of development of the main pathological conditions, symptoms, syndromes, diseases, as well as mechanisms of recovery from various diseases;
3.1.10	
3.1.11	- mechanisms of formation of pathological systems and disturbances of the information process when the body is exposed to various pathological agents;
3.1.12	- the clinical picture, features of the course and possible complications of the most common urgent diseases in different age groups.
3.1.13	
3.1.14	- features of providing first aid and resuscitation measures to victims of various types of emergency disorders of vital organs and systems.
<b>3.2</b>	<b>Be able to:</b>
3.2.1	- use acquired knowledge of pathophysiology, clinical pathophysiology when studying other medical, biological and clinical disciplines;
3.2.2	
3.2.3	- correctly interpret and apply the basic concepts of pathophysiology, clinical pathophysiology when studying medical, biological and medical literature and when working together with medical specialists.
3.2.4	- analyze pathological processes and individual diseases at various structural and morphofunctional levels.
3.2.5	- draw clinical and pathogenetic parallels of leading pathological syndromes.
3.2.6	- conduct a pathophysiological analysis of clinical, laboratory, experimental and other data and formulate a conclusion on their basis about the possible causes and mechanisms of development of pathological processes (diseases);
3.2.7	- conduct differential diagnostics between pathological conditions based on the preparation of pathogenesis schemes;
3.2.8	- substantiate the pathogenetic approach to the treatment of the pathological process (disease);
3.2.9	- analyze the role of causes, conditions, reactivity of the body in the occurrence, development and completion (outcome) of diseases;
3.2.10	
3.2.11	- 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.
3.2.12	- perform clinical diagnostics of conditions requiring urgent medical intervention.
3.2.13	- determine pathogenetic treatment.

#### 4. STRUCTURE AND CONTENT OF THE DISCIPLINE (MODULE)

Lesson code	Name of sections and topics /type of lesson/	Semester / Course	Hours	Competent tions	Literature	Note
	<b>Section 1. General questions</b>					
1.1	Stress. Adaptation /Pr/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	

1.2	Stress. Adaptation /Self study/	12	1	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.3	Collapse. Fainting. /Pr/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.4	Collapse Fainting. /Self study/	12	1	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.5	Shock /Pr/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.6	Shock /Self study/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.7	Coma /Pr/	12	4	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	

1.8	Coma /Self study/	12	1	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.9	Terminal states. /Pr/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.10	Terminal states. /Self study/	12	1	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.11	Dying and reviving of the organism. /Pr/	12	4	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.12	Dying and reviving of the organism. /Self study/	12	1	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.13	Post-resuscitation disease /Pr/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	

1.14	Post-resuscitation disease /Self study/	12	1	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.15	Treatment of emergency conditions /Pr/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.16	Treatment of emergency conditions /Self study/	12	1	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.17	Systemic inflammatory response syndrome. Sepsis /Pr/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.18	Systemic inflammatory response syndrome. Sepsis /Self study/	12	1	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.19	Acute and chronic blood loss. Anemic syndrome /Pr/	12	4	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	

1.20	Acute and chronic blood loss. Anemic syndrome /Self study/	12	1	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.21	Hypoxia and acid-base imbalance /Pr/	12	4	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.22	Hypoxia and acid-base imbalance /Self study/	12	1	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.23	Heart failure and compensatory-adaptive processes. /Pr/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.24	Heart failure and compensatory-adaptive processes. /Self study/	12	1	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.25	Hemostasis disorders. DIC syndrome /Pr/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	

1.26	Hemostasis disorders. DIC syndrome /Self study/	12	1	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.27	Respiratory failure. ARDS. RDS /Pr/	12	4	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.28	Respiratory failure. ARDS. RDS /Self study/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.29	Liver failure. Hepatorenal syndrome. /Pr/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.30	Liver failure. Hepatorenal syndrome. /Self study/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.31	Renal failure. Uremia /Pr/	12	4	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	

1.32	Renal failure. Uremia /Self study/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.33	Water-electrolyte imbalance. Edema. Ascites. Anasarca /Pr/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.34	Water-electrolyte imbalance. Edema. Ascites. Anasarca /Self study/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.35	Gastrointestinal tract pathology. Gastric ulcer and duodenal ulcer. Complications. /Pr/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.36	Gastrointestinal tract pathology. Gastric ulcer and duodenal ulcer. Complications. /Self study/	12	2	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	
1.37	/Control test/	12	0	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	Abstracts

1.38	/Credit/	12	0	UK-1 GPC -9 PC-6 PC-11	L1.1 L1.2 L1.3L2.1 L2.2L3.1 L3.2 L3.3 L3.4 L3.5 E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13	Oral questions, situational tasks
------	----------	----	---	---------------------------------	---	-----------------------------------

## 5. EVALUATION TOOLS

### 5.1. Assessment materials for ongoing monitoring and midterm assessment

Presented as a separate document

### 5.2. Assessment materials for diagnostic testing

Presented as a separate document

## 6. EDUCATIONAL, METHODOLOGICAL AND INFORMATIONAL SUPPORT OF THE DISCIPLINE (MODULE)

### 6.1. Recommended literature

#### 6.1.1. Primary literature

	Authors, compilers	Title	Publisher, year	Quantity
L1.1	Litvitsky P.F., Pirozhkov S.V., Tezikov E.B.	Pathophysiology = Pathophysiology : lectures, tests, tasks: study guide	Moscow: GEOTAR-Media, 2016, electronic resource	1
L1.2	Harrington K.S., Litvitsky P.F.	Muir's Textbook "Pathology": textbook	Moscow: GEOTAR-Media, 2022, electronic resource	1
L1.3	Litvitsky P.F.	Pathophysiology: textbook	Moscow: GEOTAR-Media, 2023, electronic resource	1

#### 6.1.2. Further reading

	Authors, compilers	Title	Publisher, year	Quantity
L2.1	Dolgikh V. T.	Pathophysiology. In 2 volumes. Volume 1. General pathophysiology: Textbook and practical course	Moscow: Publishing House Yurait, 2019, electronic resource	1
L2.2	Dolgikh V. T., Korpacheva O. V., Ershov A. V.	Pathophysiology. In 2 volumes. Volume 2. Special pathophysiology: Textbook and practical training for universities	Moscow: Publishing House Yurait, 2019, electronic resource	1

#### 6.1.3. Methodological developments

	Authors, compilers	Title	Publisher, year	Quantity
--	--------------------	-------	-----------------	----------

	Authors, compilers	Title	Publisher, year	Quantity
L3.1	Khvatova N.V.	Emergencies in diseases of internal organs: A tutorial	Moscow: Prometheus, 2012, electronic resource	1
L3.2	Meshcheryakov V.V., Minochkin P.I.	Cardiopulmonary resuscitation in children: a teaching aid [for interns, clinical residents, postgraduate students, pediatricians]	Surgut: Surgut State University, 2015, <a href="https://elib.surgu.ru/fulltext/umm/3083_Cardiopulmonary">https://elib.surgu.ru/fulltext/umm/3083_Cardiopulmonary</a>	1
L3.3	Kovalenko L. V., Bubovich E. V.	Private pathophysiology: Pathology of the cardiovascular system: a teaching aid	Surgut: Publishing center of Surgut State University, 2017, electronic resource	1
L3.4	Kovalenko L. V., Bubovich E. V., Kavushevskaya N. S., Startseva O. N.	Pathological syndromes in clinical medicine: guidelines for independent preparation of students for practical classes	Surgut: Publishing center of Surgut State University, 2019, electronic resource	1
L3.5	Kovalenko L. V., Bubovich E. V., Kavushevskaya N. S., Startseva O. N.	Pathophysiology of extreme conditions: a methodological manual for independent preparation of students for practical classes	Surgut: Publishing center of Surgut State University, 2019, electronic resource	1

## 6.2. List of resources of the information and telecommunications network "Internet"

E1	FreeMedicalJournals
E2	HighWire
E3	Molecular & Cellular Proteomics
E4	Medline
E5	Russian medicine
E6	Blackwell Synergy <a href="http://www.blackwell-synergy.com/servlet/useragent?func=showHome">http://www.blackwell-synergy.com/servlet/useragent?func=showHome</a>
E7	Russian Medical Journal <a href="http://www.rmj.ru/main.htm">http://www.rmj.ru/main.htm</a>
E8	Archive of pathology <a href="http://www.medlit.ru/medrus/arhpat.htm">http://www.medlit.ru/medrus/arhpat.htm</a>
E9	Medicum <a href="http://www.consilium-medicum.com/">http://www.consilium-medicum.com/</a>
E10	Medical scientific and educational journal <a href="http://www.medic-21vek.com/.Archive">http://www.medic-21vek.com/.Archive</a>
E11	Russian Medical Journal <a href="http://www.medlit.ru/medrus/rosmed.htm">http://www.medlit.ru/medrus/rosmed.htm</a>
E12	Russian Science Club <a href="http://ruscience.newmail.ru/">http://ruscience.newmail.ru/</a>
E13	General human pathology (systemic analysis) <a href="http://patho-not.narod.ru/">http://patho-not.narod.ru/</a> .

### 6.3.1 Software List

6.3.1.1	Microsoft operating systems, Microsoft Office suite of applications
---------	---

### 6.3.2 List of information reference systems

6.3.2.1	<a href="http://www.garant.ru">http://www.garant.ru</a> Information and legal portal Garant.ru
6.3.2.2	<a href="http://www.consultant.ru">http://www.consultant.ru</a> Reference and legal system Consultant Plus

#### **7. LOGISTICS AND TECHNICAL SUPPORT OF THE DISCIPLINE (MODULE)**

7.1	Classrooms for lecture-type classes, seminar-type classes (practical classes), group and individual consultations, ongoing monitoring and midterm assessment are equipped with: standard classroom furniture, technical teaching aids used to present educational information.
-----	--