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

Approved by  
 Deputy Rector for Academic Affairs  
 \_\_\_\_\_  
 E.V. Konovalova  
 11 June 2026, protocol No. 5

## Pathophysiology Syllabus

Department **Pathophysiology and General Pathology**

Curriculum s310501-ЛечДелоИн-25-3.pli.xml  
 Specialty 31.05.01 General Medicine

Qualification **General Practitioner**

Form of education **Full-time**

Total (in credits) **8**

Total academic hours **288**

including:

Contact hours **160**

Self-study **101**

Control hours **27**

Control:  
 5<sup>th</sup> term-credit with  
 an assessment  
 Exam, 6<sup>th</sup> term

Course outline in terms						
Academic year (Term)	5 (3.1)		6 (3.2)		Total	
Weeks	18		23			
Types of classes	Cur	Syl	Cur	Syl	Cur	Syl
Lectures	16	16	16	16	32	32
Practical classes	64	64	64	64	128	128
<b>Total</b>	<b>80</b>	<b>80</b>	<b>80</b>	<b>80</b>	<b>160</b>	<b>160</b>
Contact hours	80	80	80	80	160	160
Self-study	64	64	37	37	101	101
Control hours			27	27	27	27
<b>Total</b>	<b>144</b>	<b>144</b>	<b>144</b>	<b>144</b>	<b>288</b>	<b>288</b>

The Syllabus is compiled by:

Doctor of Medicine, Professor Kovalenko L.V.

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

The Syllabus

**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 г. № 988)

Based on the Curriculum:

31.05.01 GENERAL MEDICINE

Specialization: General Medicine

Approved by the Academic Council of Surgut State University, 11 June 2026, protocol No. 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>	
<b>1.1</b>	The aim of the Pathophysiology course is to provide students with knowledge of the general patterns and specific mechanisms of occurrence, development and outcome of pathological processes, conditions, individual diseases and the principles of their detection, treatment and prevention. The comparison of the stages of pathogenesis and clinical manifestations of diseases at all stages allows developing students' abilities of clinical and pathogenetic analysis, to select the appropriate methods of diagnostics and prescribe pathogenetic treatment.
<b>2. COURSE OVERVIEW</b>	
Course code (in curriculum)	B1.O.04.15
<b>2.1 Assumed background:</b>	
B1.O.04.08	Anatomy
B1.O.04.09	Histology, Embryology, Cytology
B1.O.04.10	Humoral Physiology
B1.O.04.12	Microbiology, Virology
B1.O.04.18	Immunology and Allergology
B1.O.04.04	Biology
<b>2.2 Post-requisite courses and practice:</b>	
2.2.7	Neurology, Medical Genetics, Neurosurgery
2.2.8	Stomatology
2.2.9	Ophthalmology
2.2.10	Otorhinolaryngology
2.2.11	Forensic Medicine
2.2.12	Propedeutics of Internal Medicine
2.2.13	Obstetrics
2.2.14	Paediatrics, Children Infections
2.2.15	Traumatology, Orthopaedics
<b>3. COMPETENCES UPON COMPLETION OF THE COURSE (MODULE)</b>	
<b>GPC-5.6: Knows the structure of the human body, morphological macro- and microscopic parameters in health and in pathology, criteria for general pathological pathophysiological processes in various nosologies, knows how to differentiate them macro- and microscopically, has skills to solve problems of operative surgery on the basis of knowledge of topographic anatomy</b>	
<b>GPC-5.8: Knows the mechanisms of development of general pathological processes and the pathogenesis of various diseases and pathological conditions of a person; is able to identify the leading factors of pathogenesis in their relationship with a specific disease or pathological condition and substantiate effective pathogenetic therapy</b>	
<b>GPC-5.9: Knows immune defense mechanisms, types of immunological reactions and their role in the pathogenesis of human diseases</b>	
<b>GPC-5.10: Knows the etiology and pathogenesis of diseases, which is necessary to assess the physiological state and pathological processes in order to diagnose, treat and prevent diseases</b>	
<b>By the end of the course students must:</b>	
<b>3.1</b>	<b>Know:</b>
	- specific features of the subject and objectives of pathophysiology;
	- the role, place and relations with other biological and medical sciences;
	- the main historical stages of pathophysiology;
	- the prospects of development and new trends in the study of pathophysiology, clinical pathology;
	- the prospects of development and new trends in the study of pathophysiology;
	- the general patterns of development and manifestations of various pathological reactions, processes, conditions and diseases;
	- the mechanisms of developing pathological systems and disruptions of the information process when exposed to various pathological agents;
	- developmental patterns of the main pathological conditions, symptoms, syndromes, diseases, well as the as mechanisms of recovery from various diseases;

	- the mechanisms of development of pathological systems and disruptions of the information process when exposed to various pathological agents.
<b>3.2</b>	<b>Be able to:</b>
	- use the background knowledge in pathophysiology for studying other biomedical and clinical disciplines;
	- interpret correctly and apply the basic concepts of pathophysiology while studying biomedical and medical literature and in collaboration with medical specialists;
	- analyze pathological processes and individual diseases at different structural and morphofunctional levels;
	- draw clinical and pathogenetic parallels of the common pathological syndromes;
	- carry out pathophysiological analysis of clinical and laboratory, experimental and other data and to formulate a conclusion on their basis of the possible causes and mechanisms of pathological processes (diseases);
	- carry out differentiated diagnostics of pathological conditions on the basis of pathogenesis mapping;
	- substantiate the pathogenetic approach to the treatment of pathological process (disease);
	- analyze the role of causes, conditions, reactivity of the body, development and completion (outcome) of diseases;
	- analyze the etiology, pathogenesis, manifestations and outcomes of the most common forms of pathology of the organs and physiological systems, the principles of their etiological and pathogenetic therapy.

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

Class Code	Topics /Class type	Term / Academic year	Academic hours	Competences	Literature	Notes
<b>Section 1. General Pathophysiology</b>						
<b>1.1</b>	Introduction. The subject and tasks of pathophysiology. Cell pathology. /Lec/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	
<b>1.2</b>	Disorders of peripheral blood circulation and microcirculation. /Lec/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	
<b>1.3</b>	Pathophysiology of haemostasis. Inflammation. /Lec/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	
<b>1.4</b>	Pathophysiology of the immune system. Allergy. Types and mechanisms of allergic reactions. /Lec/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	

<b>1.5</b>	Acute phase response. Fever. Hyperthermia. /Lec/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	
<b>1.6</b>	Typical acid-base disorders. Typical violations of water-electrolyte metabolism. Edema. /Lec/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	
<b>1.7</b>	Pathophysiology of protein and lipid metabolism. Pathophysiology of carbohydrate metabolism. Obesity. Diabetes mellitus. /Lec/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	
<b>1.8</b>	The role of heredity in pathology. The impact of environmental factors on the organism. /Lec/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	
<b>1.9</b>	Introduction. The subject and tasks of pathophysiology. /Pr/	5	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	
<b>1.10</b>	Pathology of the cell. /Pr/	5	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	
<b>1.11</b>	Peripheral blood circulation and microcirculation disorders. /Pr/	5	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	
<b>1.12</b>	Pathophysiology of haemostasis. /Pr/	5	6	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	
<b>1.13</b>	Inflammation. /Pr/	5	6	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	
<b>1.14</b>	Colloquium. /Pr/	5	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	
<b>1.15</b>	The pathophysiology of the immune system. Allergy. Types and mechanisms of allergic reactions. /Pr/	5	6	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	
<b>1.16</b>	Acute phase response. Fever. Hyperthermia. /Pr/	5	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	
<b>1.17</b>	Reactivity of the organism and its importance in pathology. Adaptation. The constitution of the body. /Pr /	5	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>1.18</b>	Colloquium. /Pr/	5	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>1.19</b>	Typical violations of the acid-base balance. /Pr/	5	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0

<b>1.20</b>	Typical violations of water-ions metabolism. Edemas. /Pr/	5	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	<b>0</b>
<b>1.21</b>	Pathophysiology of protein and lipid metabolism. /Pr/	5	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>1.22</b>	Pathophysiology of carbohydrate metabolism. Obesity. Diabetes mellitus. /Pr/	5	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>1.23</b>	Colloquium. /Pr/	5	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	<b>0</b>
<b>1.24</b>	The role of heredity in pathology. /Pr/	5	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	<b>0</b>
<b>1.25</b>	Influence of environmental factors on the body. /Pr/	5	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	<b>0</b>
<b>1.26</b>	Final Lesson. Test. /Pr/	5	4	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	<b>0</b>
<b>1.27</b>	Introduction The subject and tasks of pathophysiology. /Self-study/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	<b>0</b>
<b>1.28</b>	Cell pathology. /Self-study/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	<b>0</b>
<b>1.29</b>	Peripheral blood circulation and microcirculation disorders. /Self-study/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	<b>0</b>
<b>1.30</b>	Pathophysiology of haemostasis. /Self-study/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	<b>0</b>
<b>1.31</b>	Inflammation. /Self-study/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	<b>0</b>
<b>1.32</b>	Colloquium. /Self-study/	5	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>1.33</b>	The pathophysiology of the immune system. Allergy. Types and mechanisms of allergic reactions. /Self-study/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	<b>0</b>
<b>1.34</b>	Acute phase response. Fever. Hyperthermia. /Self-study/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	<b>0</b>

<b>1.35</b>	Reactivity of the organism and its importance in pathology. Adaptation. The constitution of the body. /Self-study/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>1.36</b>	Colloquium. /Self-study/	5	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>1.37</b>	Typical violations of the acid-base balance. /Self-study/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>1.38</b>	Typical violations of water-electrolyte metabolism. Edemas. /Self-study/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>1.39</b>	Pathophysiology of protein and lipid metabolism. /Self-study/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>1.40</b>	Pathophysiology of carbohydrate metabolism. Obesity. Diabetes mellitus. /Self-study/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>1.41</b>	Colloquium. /Self-study/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>1.42</b>	The role of heredity in pathology. /Self-study/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>1.43</b>	Influence of environmental factors on the body. /Self-study/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>1.44</b>	Credit with an assessment Final class. /Self-study/	5	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>Section 2. Systemic Pathophysiology</b>						
<b>2.1</b>	Coronary insufficiency. Atherosclerosis. Overload and metabolic heart failure. /Lec/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>2.2</b>	Circulatory disorders in disruptions of vascular tone. Cardiac arrhythmias. /Lec/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>2.3</b>	Pathophysiology of respiration. Pathophysiology of digestion. /Lec/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
<b>2.4</b>	Peptic ulcer and duodenum. Diseases of the pancreas. Syndrome of malabsorption and maldigestion. /Lec/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0

2.5	Pathophysiology of the liver. Pathophysiology of the kidneys. Uremia. Uremic coma. /Lec/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2.,1.3	0
2.6	Pathophysiology of the hypothalamic-pituitary system, thyroid and parathyroid glands. /Lec/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.7	Pathophysiology of the adrenal glands and genital glands. Violations of the red blood cell system. Violations of the leukocyte system. /Lec/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.8	General etiology and mechanisms of nervous system damage. Pathophysiology of pain. /Lec/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.9	Coronary insufficiency. Atherosclerosis. /Pr/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.10	Overload and metabolic heart failure. /Pr/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2.,1.3	0
2.11	Circulatory disorders in disruptions of vascular tone. /Pr/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.12	Cardiac arrhythmias. /Pr/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2.,1.3	0
2.13	Pathophysiology of respiration. /Pr/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.14	Hypoxia and hyperoxia. /Pr/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.15	Pathophysiology of digestion. /Pr/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2.,1.3	0
2.16	Peptic ulcer and duodenum. Diseases of the pancreas. Syndrome of malabsorption and maldigestion. /Pr/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.17	Pathophysiology of the liver. /Pr/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.18	Pathophysiology of the kidneys. Uremia. Uremic coma. /Pr/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.19	Pathophysiology of the hypothalamic-pituitary system, thyroid and parathyroid glands. /Pr/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0

2.20	Pathophysiology of the adrenal glands and genital glands. /Pr/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.21	Violations of the red blood cell system. /Pr/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.22	Violations of the leukocyte system. /Pr/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.23	Pathophysiology of the blood system (colloquium). /Pr/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.24	General etiology and mechanisms of nervous system damage. Pathophysiology of pain. /Pr/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.25	Final colloquium. /Pr/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.26	Final Lesson (Test). /Pr/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.27	Coronary insufficiency. Atherosclerosis. /Self-study/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.28	Overload and metabolic heart failure. /Self-study/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.29	Circulatory disorders in disruptions of vascular tone. /Self-study/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.30	Cardiac arrhythmias. /Self-study/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.31	Pathophysiology of respiration. /Self-study/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.32	Hypoxia and hyperoxia. /Self-study/	6	3	GPC-5.6 GPC-5.8 GPC-5.9	1.1., 1.2., 1.3	0
2.33	Pathophysiology of digestion. /Self-study/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.34	Peptic ulcer and duodenum. Diseases of the pancreas. Syndrome of malabsorption and maldigestion. /Self-study/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0

2.35	Pathophysiology of the liver. /Self-study/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.36	Pathophysiology of the kidneys. Uremia. Uremic coma. /Self-study/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.37	Pathophysiology of the hypothalamic-pituitary system, thyroid and parathyroid glands. /Self-study/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.38	Pathophysiology of the adrenal glands and genital glands. /Self-study/	6	3	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.39	Violations of the red blood cell system. /Self-study/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.40	Violations of the leukocyte system. /Self-study/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	
2.41	General etiology and mechanisms of nervous system damage. Pathophysiology of pain. /Self-study/	6	2	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0
2.42	Exam.	6	27	GPC-5.6 GPC-5.8 GPC-5.9 GPC-5.10	1.1., 1.2., 1.3	0

## 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
1.1	Litvitsky P.F.	Clinical pathophysiology : concise lectures, tests, cases	GEOTAR-Media, 2012 .-- 432 p. Electronic resource: <a href="https://www.studentlibrary.ru/book/ISBN9785970449929.html">https://www.studentlibrary.ru/book/ISBN9785970449929.html</a>	1
1.2	Litvitsky P.F. and others	Pathophysiology : lectures, tests, cases	GEOTAR-Media, 2012 .-- 432 p. Electronic resource: <a href="https://www.studentlibrary.ru/book/ISBN9785970419847.html">https://www.studentlibrary.ru/book/ISBN9785970419847.html</a>	1
1.3	Litvitsky P.F. and others	Pathophysiology : lectures, tests, cases	GEOTAR-Media, 2016.-- 432 p. Electronic resource: <a href="https://www.studentlibrary.ru/book/ISBN9785970436004.html">https://www.studentlibrary.ru/book/ISBN9785970436004.html</a>	1

#### 6.1.2. Supplementary

<b>6.2. Internet resources</b>	
E1	<a href="http://www.niopp.ru/jpathphys/">http://www.niopp.ru/jpathphys/</a>
E2	<a href="http://www.niopp.ru/jpathphys/">http://www.niopp.ru/jpathphys/</a>
E3	<a href="http://www.rmj.ru/main.htm">http://www.rmj.ru/main.htm</a>
E4	<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
6.3.1.2	Internet access ( Wi-Fi)
<b>6.3.2 Information Referral systems</b>	
6.3.2.1	E-data base: <a href="http://www.garant.ru">http://www.garant.ru</a>
6.3.2.2	E-data base: <a href="http://www.consultant.ru">http://www.consultant.ru</a>
<b>7. MATERIAL AND TECHNICAL SUPPORT OF THE DISCIPLINE (MODULE)</b>	
7.1	The classroom for lecture-type classes is equipped with a multimedia projector, screen, laptop, stationary chalk board, standard classroom furniture: desks, chairs.
7.2	The classroom for conducting practical classes, group and individual consultations, formative assessment and midterm assessment is equipped with: tables for classes (10 pcs.), chairs (24 pcs.) interactive pathology class "VIRCHOV" (student workstations: processor, display ( 6 pcs.), interactive board, laptop, microscopes (8 pcs.), portable projector (1 pc.), thematic presentations for each section in the format, videos, tables, models, micropreparations (M&P - 182 pcs.)