

Документ подписан простой электронной подписью  
Информация о владельце:  
ФИО: Косенок Сергей Михайлович  
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**Budget establishment higher education**  
Khanty-Mansiysk Autonomous Okrug-Ugra  
"Surgut State University"

APPROVED  
Vice-Rector according to UMR

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

June 13, 2024, UMS protocol No. 5

# GENERAL PROFESSIONAL DISCIPLINES MODULE

## Immunology and allergology

### working program discipline ( module )

Pinned behind department      **Pathophysiology and general pathology**

Training plan                      s 310501-LechDelo-24-4-RPD. plx  
05/31/01 General medicine  
Specialization : Medical case

Qualification                      **Medical doctor**

Form training                      **full-time**

General labor intensity           **4 ZET**

Hours By educational plan                      144  
in number :  
classrooms classes                      112  
independent Job                      32

Kinds control in semesters :  
credit 8, 7

#### Distribution of discipline hours by semester

Semester (<Course>.<Semester on course>)	7 (4.1)		8 (4.2)		Total	
weeks	16 4/6		12 4/6			
View classes	UP	RP	UP	RP	UP	RP
Lectures	16	16	16	16	32	32
Practical	40	40	40	40	80	80
Total room	56	56	56	56	112	112
Contact work	56	56	56	56	112	112
Myself . Job	16	16	16	16	32	32
Total	72	72	72	72	144	144

program compiled (s): Bolotskaya L.A.

Working program disciplines

**Immunology and allergology**

developed in accordance with Federal State Educational Standards:

Federal State Educational Standard of Higher Education in the specialty 05.31.01 General Medicine (order of the Ministry of Education and Science of Russia dated 08.12.2020 No. 988)

compiled on the basis of the curriculum:

05.31.01 General medicine

Specialization: General Medicine

protocol No. 5 approved by the educational and methodological council of the university dated June 13, 2024.

The work program was approved at a department meeting

**Pathophysiology and general pathology**

April "19" 2024, Record No 11.

Head Department of Doctor of Medical Sciences Professor Kovalenko L.V.

1. GOALS OF DISCIPLINE MASTERING	
1.1	to give students a system of knowledge about the mechanisms of the body's defense and methods for assessing them in normal and pathological conditions, to reveal the concept of diseases of the immune system and to develop practical skills for assessing morphofunctional, physiological conditions and pathological processes in the human body.

2. PLACE OF DISCIPLINE IN THE STRUCTURE OF PLO	
Cycle ( section ) OOP:	B1.O.04
2.1	<b>Requirements for preliminary preparation of the student:</b>
	human anatomy
	Biochemistry
	Chemistry
	Microbiology , virology
	Normal physiology
	Biology
	human anatomy
	Biochemistry
	Chemistry
	Microbiology , virology
	Normal physiology
	Biology
2.2	<b>Disciplines and practices for which mastering this discipline (module) is necessary as a prerequisite:</b>
	Epidemiology
	Dermatovenereology
	Neurology , medical genetics , neurosurgery
	Ophthalmology
	Obstetrics
	Pediatrics , children's infections
	Hospital therapy (5 course )
	Endocrinology
	Infectious illnesses
	Polyclinic therapy
	Oncology , radiation therapy
	Pathological syndromes in clinical medicine
	Epidemiology
	Dermatovenereology
	Neurology , medical genetics , neurosurgery
	Ophthalmology
	Obstetrics
	Pediatrics , children's infections
	Hospital therapy (5 course )
	Endocrinology
	Infectious illnesses
	Polyclinic therapy
	Oncology , radiation therapy
	Pathological syndromes in clinical medicine

3. STUDENT COMPETENCIES FORMED AS A RESULT OF MASTERING A DISCIPLINE (MODULE)
<b>GPC-5.1:</b> Demonstrates knowledge and understanding in the sections of fundamental medicine - anatomical, histological structures (anatomy of the human body, structure of organ tissues and their microscopic differentiation), physiological processes (human physiology, mechanisms of regulation of homeostasis, normal functional systems of the body).
<b>GPC-5.8:</b> Demonstrates an understanding of the mechanisms of development of general pathological processes, knowledge of the pathogenesis of various human diseases and pathological conditions, the ability to identify the leading links of pathogenesis in their relationship in a specific disease or pathological condition and, on this basis, the ability to justify effective pharmacotherapy.

**GPC-5.9:** Demonstrates knowledge of the theoretical foundations of immunology, allergology, understanding of immune defense mechanisms, types of immunological reactions and their role in the pathogenesis of human diseases.

**GPC-5.10:** Demonstrates knowledge of the etiology and pathogenesis of diseases, which is necessary to assess the physiological state and pathological processes for the purpose of diagnosis, treatment and prevention of diseases.

**PC-8.2:** Maintains medical documentation, including in electronic form

**PC-5.2:** Provide treatment to various categories of patients with diseases on an outpatient basis, in hospitals and high-tech medical care (HTMC) centers using medications, medical devices and nutritional therapy, taking into account the clinical picture, in accordance with current procedures, standards of medical care assistance, clinical recommendations (treatment protocols).

**PC-5.3:** Prescribes non-drug treatment methods, palliative and personalized medical care to the patient

**PC-5.4:** Demonstrates knowledge of the side effects of drugs, methods of their administration, knowledge of the duration of their use and evaluates the effectiveness and safety of pharmacotherapy, nutritional therapy and the use of non-drug treatment, nutritional therapy for palliative care.

**PC-3.3:** Conducts early and differential diagnosis of diseases.

**PC-2.1:** Assess the condition of a patient requiring urgent or emergency medical care, diagnose a condition that poses a threat to the patient's life, including a state of clinical death.

**PC-1.1:** Demonstrates knowledge of etiology, pathogenesis, diagnostic criteria (clinical - subjective, physical, laboratory, instrumental), identifies the patient's main pathological conditions, symptoms, disease syndromes and diagnoses nosological forms in accordance with the International Statistical Classification of Diseases and Related Health Problems, X – XI revisions.

**PC-1.2:** Conducts differential diagnostics, assesses the prognosis (short-, medium- and long-term) of the course of the disease, identifies acute complications and complications of chronic diseases

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

<b>3.1</b>	<b>Know :</b>
3.1.1	about the specifics of the subject and the objectives of the discipline of immunology and allergology;
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 immunology and allergology;
3.1.4	about the prospects for the development of science and new directions in the study of immunology;
3.1.5	basic concepts used in allergology and immunology.
3.1.6	about the body's defenses (innate and adaptive defense factors);
3.1.7	about the properties of antigens and antibodies, classes of immunoglobulins;
3.1.8	about forms immune response ;
3.1.9	about immunopathological, morphofunctional, physiological conditions, mechanisms of their development;
3.1.10	about immunodeficiencies of primary and secondary genesis, mechanisms and causes of their development, differential diagnosis of nosological forms, treatment features;
3.1.11	about modern methods for assessing the main diseases of the human immune system;
3.1.12	about the types and indications for the use of immunotropic drugs;
3.1.13	about immunotropic drugs (classification, pharmacokinetics and pharmacodynamics , application features);
3.1.14	about allergen-specific immunotherapy ;
3.1.15	about immunoprophylaxis and immunorehabilitation ;
3.1.16	principles of organizing allergy and immunology services.
<b>3.2</b>	<b>Be able to :</b>
3.2.1	assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems;
3.2.2	correctly interpret and apply the basic concepts of immunology when studying biomedical and medical literature and when working together with medical specialists.
3.2.3	justify the need for clinical and immunological examination;
3.2.4	interpret the results of assessing the immune status of the 1st level;
3.2.5	carry out differential diagnosis of diseases of the immune system;
3.2.6	evaluate and interpret the results of clinical and immunological examination;
3.2.7	assess the importance of immunogenetic factors in the pathogenesis and diagnosis of immune-mediated human diseases, during organ and tissue transplantation;
3.2.8	characterize and evaluate the levels of organization of the human immune system, evaluate the mediator role of cytokines;
3.2.9	assess the immune response after active immunization in humans;
3.2.10	determine the "risk group" for immunopathology ( immunodeficiency , autoimmune, allergic, immunoproliferative diseases);

3.2.11 - justify the need to prescribe immunocorrective drugs.

4. STRUCTURE AND CONTENT OF THE DISCIPLINE (MODULE)						
Code classes	Name of sections and topics /type of lesson/	Semester/ Course	Hours	Competent - tions	Literature	Note
	<b>Section 1. Section 1. The doctrine of immunity. Age characteristics formation of the immune system. Mechanisms of specific and nonspecific resistance. Theories immunity</b>			GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2		
1.1	Types of immunity. Hereditary immunity. Mechanisms of nonspecific resistance. Relationship between complementary and mononuclear phagocytic systems with specific defense mechanisms. / Lek /	7	2	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.1 L2.2 L2.3 L2.4 L2.5 L2.6L3.1 L3.2 L3.3 E1 E2 E3	
1.2	Immune system: organs (central, peripheral), cells (T-, B-lymphocytes, natural killer cells, macrophages, plasma cells). / Lek /	7	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
1.3	Properties of substances of antigenic nature. Antigen structure. Valence and heterogeneity of antigens. Characteristics by origin and type of immune response evoked /Lek/	7	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
1.4	Basic principles of the immune system. Specific and nonspecific in the immune system / Etc /	7	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
1.5	Basic principles of the immune system. Specific and nonspecific in the immune system. / Wed /	7	2	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
1.6	Age peculiarities immunity / Etc /	7	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	

1.7	Age peculiarities immunity / Wed /	7	2	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
1.8	Inflammation is an effector function of the immune system. / Etc /	7	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
1.9	Inflammation is an effector function of the immune system. / Wed /	7	2	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
1.10	Phases of the inflammatory process. / Etc /	7	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
1.11	Phases of the inflammatory process. /Wed/	7	2	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
1.12	Components immune systems / Etc /	7	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
1.13	Components immune systems / Wed /	7	2	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
1.14	The concept of antigen and its laboratory diagnostics / Etc /	7	6	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	

1.15	The concept of antigen and its laboratory diagnostics /Wed/	7	2	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
	<b>Section 2. Section 2. Immune system. Cellular and humoral specific immunity. Mediators of immunity. Antigens and antibodies. Laboratory diagnostics of cellular and humoral immunity.</b>					
2.1	Humoral specific immunity, cell interaction. Antibodies: structure and chemical composition. Classes immunoglobulins . / Lek /	7	2	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
2.2	Patterns of immunogenesis. Primary and secondary immune response /Lek/	7	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
2.3	Place of formation and transport of immune system cells / Etc /	7	6	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
2.4	Place of formation and transport of cells of the immune system / Wed /	7	1	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
2.5	Regulation of the formation and functioning of cells of the immune system / Etc /	7	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
2.6	Regulation of the formation and functioning of cells of the immune system / Wed /	7	2	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	

2.7	Analysis of nucleated blood cells. / Etc /	7	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
2.8	Analysis of nucleated blood cells. /Wed/	7	1	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
2.9	Methods for determining lymphocyte activity / Etc /	8	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6 L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
2.10	Methods for determining lymphocyte activity / Wed /	8	1	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
2.11	Assessment of the functional activity of neutrophils. / Etc /	8	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
2.12	Assessment of the functional activity of neutrophils. /Wed/	8	1	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
2.13	Methods for laboratory activity of antigens. / Etc /	8	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
2.14	Methods for laboratory activity of antigens. /Wed/	8	1	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	



2.15	Methods for laboratory diagnosis of serum immunoglobulins. / Etc /	8	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
2.16	Methods for laboratory diagnosis of serum immunoglobulins. / Wed /	8	1	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
	<b>Section 3. Section 3. The concept of norm and pathology in the functioning of the immune system. The concept of immune status and methods for assessing it. Characteristics of medicinal substances based on antigens and antibodies. Vaccine prevention .</b>					
3.1	Cellular mechanisms of specific immunity. The role of cells in antitumor, antiviral, transplantation immunity /Lek/	8	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
3.2	The concept of immunopathology. Allergies of immediate and delayed type. Autoimmune conditions . Immunocomplex conditions . / Lek /	8	6	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
3.3	Immunodeficiencies: primary and secondary. Clinical manifestations of IDS. / Lek /	8	6	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
3.4	Insufficiency of the immune system. / Etc /	8	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
3.5	Insufficiency of the immune system. /Wed/	8	2	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	

3.6	The concept of normal functioning of the immune system / Etc /	8	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
3.7	The concept of normal functioning of the immune system / Wed /	8	2	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
3.8	Study and write down level 1 and 2 tests to assess a person's immune status. / Etc /	8	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
3.9	Study and write down level 1 and 2 tests to assess a person's immune status. / Wed /	8	2	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
3.10	Study the classification of drugs based on antibodies. / Etc /	8	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
3.11	Study the classification of drugs based on antibodies. / Wed /	8	2	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
3.12	Study the classification of drugs based on antigens. / Etc /	8	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
3.13	Study the classification of drugs based on antigens. /Wed/	8	2	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	

3.14	Study and write down the calendar of compulsory vaccinations in Russia. / Etc /	8	4	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
3.15	Study and write down the calendar of compulsory vaccinations in Russia. / Wed /	8	2	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	
3.16	Control work /Control /	7	0	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	Control work
3.17	Control work /Control /	8	0	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	Control work
3.18	Credit	7	0	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	Credit task
3.19	Credit	8	0	GPC-5.1 GPC-5.8 GPC-5.9 GPC-5.10 PC-8.2, PC-5.2 PC-5.3, PC-5.4 PC-3.3, PC-2. PC-1.1, PC-1.2	L1.1 L1.2 L1.3 L1.4 L1.5 L1.6L2.2 L2.3 L2.4L3.1 L3.2 L3.3 E1 E2 E3	Credit task

## 5. ASSESSMENT TOOLS

### 5.1. Assessment materials for ongoing monitoring and intermediate certification

Presented separately document

### 5.2. Diagnostic Testing Assessment Materials

Presented separately document

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

### 6.1. Recommended literature

#### 6.1.1. Main literature

	Authors , compilers	Title	Publisher , year	Quantity
L1.1	Kovalchuk L. V., Gankovskaya L. V., Meshkova R. Ya.	Clinical immunology and allergology with the basics of general immunology: textbook	Moscow: Publishing group "GEOTAR-Media", 2014	10

L1.2	Khaitov R.M.	Immunology: structure and functions of the immune system: Recommended by the Russian Medical Academy of Postgraduate Education for use in biological faculties of universities and for postgraduate education of researchers in various biological specialties.	Moscow: GEOTAR- Media , 2013, Electronic resource	1
L1.3	Khaitov R.M.	Immunology	Moscow: GEOTAR- Media , 2015, Electronic resource	1
L1.4	Khaitov R.M.	Immunology: Ministry of Education and Science of the Russian Federation Recommended by the Federal State Institution "Federal Institute for Educational Development" as a textbook for use in the educational process of educational institutions implementing higher education programs in the field of training 08/31/26 "Allergology and Immunology" Review registration number 20 dated 02/12/2016	Moscow: GEOTAR- Media , 2016, Electronic resource	2
L1.5	Zverev V.V., Boychenko M.N.	Medical microbiology, virology and immunology. Volume 1.: textbook	Moscow : GEOTAR- Media, 2016, Electronic resource	1
L1.6	Zverev V.V., Boychenko M.N.	Medical microbiology, virology and immunology. Volume 2.: textbook	Moscow : GEOTAR- Media, 2016, Electronic resource	1
<b>6.1.2. Additional literature</b>				
	Authors , compilers	Title	Publisher , year	Quantity
L2.1	Kovalchuk L. V., Ignatieva G. A., Gankovskaya L. V.	Immunology : workshop	Moscow: Publishing group "GEOTAR-Media", 2015	15
L2.2	Moskalev A.V., Sboychakov V.B., Rudoy A.S.	General immunology with the basics of clinical immunology: textbook	Moscow: Publishing group "GEOTAR-Media", 2015	10
L2.3	Khaitov R.M.	Immunology: Recommended by the State Educational Institution of Higher Professional Education "Moscow Medical Academy named after I.M. Sechenov" as a textbook for students of institutions of higher professional education studying in the specialty 060101.65 "General Medicine", 060103.65 "Pediatrics", 060105.65 "Dentistry" in medical and biological disciplines, in particular in "General and Clinical Immunology", as well as for the postgraduate education system, interns and residents in the discipline "General and Clinical Immunology"	Moscow: GEOTAR- Media, 2013, Electronic resource	1
L2.4	Sboychakov V.B., Karapats M.M.	Microbiology, virology and immunology: a guide to laboratory classes: Ministry of Education and Science of the Russian Federation Recommended by the State Educational Institution of Higher Professional Education "First Moscow State Medical University named after I.M. Sechenov" as a teaching aid for students of institutions of higher professional education, students in the specialties 060101.65 "General Medicine" and 060103.65 "Pediatrics" in the disciplines "Microbiology, Virology", "Immunology"; in specialty 060105.65 "Medical and preventive care" in the discipline "Microbiology. Virology. Immunology"; in specialty 060201.65 "Dentistry" in the disciplines "Microbiology. Virology", "Immunology"	Moscow: GEOTAR- Media, 2015, Electronic resource	2
L2.5	Dolgikh V. T., Zolotov A. N.	Immunology : Educational allowance	Moscow : Publishing house Yurayt, 2019, Electronic resource	1
L2.6	Dolgikh V. T., Korpacheva O. V.	Pathophysiology. Immunology. Tests: Textbook for universities	Moscow: Urayt , 2020, Electronic resource	1
<b>6.1.3. Methodical development</b>				
	Authors , compilers	Title	Publisher , year	Quantity
L3.1	Bolotskaya L. A., Meshcheryakov V. V.	Types of Allergic Reactions: A Study Guide	Surgut : Publishing center of Surgu State University, 2016	85

L3.2	Bolotskaya L. A.	Antigenic systems of peripheral blood: educational and methodological manual for students of medical universities	Surgut: Surgut State University, 2015, Bolotskaya_L_A_ Antigenic systems of peripheral blood, Electronic resource	2
L3.3	Bolotskaya L. A.	Physiology and pathology of the immune system in children: educational and methodological manual for students of medical universities	Surgut: Surgut State University, 2015 Bolotskaya_L_A_ Fisiology and pathology of the immune system in children Electronic resource	2

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

E1	Med-edu.ru
E2	BioChimMac
E3	Medical online directory

#### **6.3.1 List software provision**

6.3.1.1	Operating Microsoft systems
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#### **6.3.2 List 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> Legal reference system Consultant Plus

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

7.1	The classroom for lecture classes is equipped with a multimedia projector, screen, laptop, stationary chalk board, standard classroom furniture: desks, chairs
	The classroom for conducting practical classes, group and individual consultations, ongoing monitoring and intermediate certification is equipped with: the necessary equipment (multimedia projector, screen, laptop) and technical means (TV, video player) to provide educational information to students.