

Federal State Autonomous Educational Institution of Higher Education  
«Peoples' Friendship University of Russia»

*Medical Institute*

Recommended MCSD

**SYLLABUS**  
(STUDY GUIDE)

**Subject**

**Allergology**

**Recommended for the direction of training (specialty)**

**31.05.01 General Medicine**

**Program (profile, specialization)**

**General Medicine**

## 1. Goals and objectives of the discipline:

The goal is to form students' modern ideas about the structure and function of the immune system, the clinical picture of allergic diseases, their diagnosis, therapy and prevention.

The objectives of the discipline:

- Formation of knowledge about the structure and function of the human immune system, its age characteristics, the role of allergens in the development of allergic diseases.
- Formation of knowledge about the types and mechanisms of development of allergic diseases, features of their clinical course.
- Formation of knowledge and concepts about the methods of molecular diagnostics of allergic diseases
- Formation of knowledge and skills on modern methods of clinical and laboratory diagnostics of allergic diseases.
- Formation of knowledge about modern pharmaco-therapeutic approaches to the treatment and prevention of allergic diseases.
- Formation of knowledge and skills in the application of methods of specific diagnostics and immunotherapy of allergic diseases.

## 2. Place of discipline in the structure of EP HE:

Discipline "Allergology" refers to the basic part of block 1 of the curriculum.

Table 1 shows the previous and subsequent disciplines aimed at the formation of discipline competencies in accordance with the competence matrix of EP HE.

**Table 1**

No. 1	Item number Code and name of competence	Previous disciplines	Subsequent disciplines (groups of disciplines)
General-cultural competences			
	LC-1,	Physics; Mathematics; Anatomy; Biochemistry	Hygiene; Public Health and Health Care; Health Economics
General professional competencies			
	GPC-6,	Emergency Medicine	Fundamental and Clinical Biochemistry; Fundamental and Clinical Pathophysiology; Emergency Medicine
Professional competencies (type of professional activity)			
	PC-1, PC-5, PC-6	Pathophysiology, Clinical Pathophysiology Epidemiology	Epidemiology; Medical Rehabilitation; Polyclinic Therapy; Infectious Diseases; Pediatrics; Therapy; Pulmonology; Hematology

### 3. Requirements for the results of mastering the discipline.

The process of studying the discipline is aimed at the formation of the following competencies:

**Table 2**

#### Formed competencies

Competencies	Competence name	Indicators of achievement of competencies
UC-1	Being able to implement critical analysis of problem situations based on systems approach, develop an action strategy	UC-1.1. Analysing scientific and technical literature and regulatory documents of medical institutions. UC-1.2. Assessing in a critical way the reliability of information sources, working with contradictory information from different sources. UC-1.3. Understanding the trends, strategic goals, problems in the field of healthcare/ being aware of regulatory framework to develop a strategy. UC-1.4. Analysing and assessing the economic potential, financial viability and risks of an organization.
GPC - 6	Being able to organize patient care, provide primary health care, arrange work and make professional decisions in emergency conditions at the prehospital stage, in emergency situations, epidemics and in foci of mass destruction	GPC-6.1. Mastering the algorithm for providing first aid in emergency conditions, including in extreme conditions and foci of mass destruction. GPC-6.2. Being able to identify the conditions which require emergency medical care, including clinical signs of sudden cessation of blood circulation and respiration. GPC-6.3. Being able to provide emergency medical care to patients in conditions that pose a threat to the life of a patient, including clinical death (cessation of the vital bodily functions (blood circulation and (or) breathing).
PC - 1	Being able to provide emergency or urgent medical care to a patient	PC-1.1. Being able to assess the condition of a patient who needs emergency or urgent medical care. PC-1.2. Being able to recognize conditions that arise from sudden acute diseases, exacerbation of chronic diseases without obvious signs of a threat to the patient's life and which require emergency medical care. PC-1.3. Being able to provide emergency medical care to patients with sudden acute diseases, conditions, exacerbation of chronic diseases without obvious signs of a threat to the patient's life. PC-1.4. Being able to recognize conditions which pose a threat to the patient's life, including conditions of clinical death (cessation of the vital bodily functions (blood circulation and/or respiration) which require emergency medical care.

		<p>PC-1.5. Being able to provide emergency medical care to patients in conditions which pose a threat to the patient's life, including clinical death (cessation of the vital bodily functions (blood circulation and/or respiration).</p> <p>PC-1.6. Being able to use drugs and medical devices when providing medical care in emergency or urgent forms.</p>
PC-5.	<p>Being able to carry out preventive measures and measures to promote a healthy lifestyle and sanitary and hygiene education among population and monitor their effectiveness</p>	<p>PC-5.1. Being able to organize and conduct medical examinations taking into account age, health status, profession in accordance with applicable legislative acts and other documents.</p> <p>PC-5.2. Being able to organize and monitor the immunization of the adult population against infectious diseases in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care.</p> <p>PC-5.3. Being able to carry out medical examination of the adult population aimed at early detection of chronic noncommunicable diseases and the main risk factors for their development in accordance with the current legislative acts and other documents.</p> <p>PC-5.4. Being able to carry out follow-up care of patients with diagnosed chronic noncommunicable diseases.</p> <p>PC-5.5. Being able to prescribe preventive measures to patients taking into account risk factors in accordance with the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on the provision of medical care taking into account the standards of medical care.</p> <p>PC-5.6. Being able to monitor observing preventive measures.</p> <p>PC-5.7. Being able to determine medical indications to introduce restrictive measures (quarantine) and indications for referral to a medical specialist in the event of infectious (parasitic) diseases.</p> <p>PC-5.8. Being able to issue and send an emergency notification to the territorial body of the Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing when an infectious or occupational disease is detected.</p> <p>PC-5.9. Being able to carry out anti-epidemic measures in the event of the occurrence of a focus of infection, including quarantine measures when especially dangerous (quarantine) infectious</p>

		<p>diseases are detected.</p> <p>PC-5.10. Being able to develop healthy lifestyle programmes, including the ones to reduce alcohol and tobacco consumption, prevent and combat non-medical use of narcotic drugs and psychotropic substances.</p> <p>PC-5.11. Being able to assess the effectiveness of preventive patient care.</p>
PC - 6	Being able to keep medical records and organize the activities of the nursing staff	<p>PC-6.1. Being able to draw up a work plan and report on their work, issue a passport for a healthcare (therapeutic) area.</p> <p>PC-6.2. Being able to analyze morbidity, disability and mortality rates to characterize the health of the registered population.</p> <p>PC-6.3. Being able to keep medical records, including in the electronic form.</p> <p>PC-6.4. Being able to monitor the performance of official duties by a district nurse and other medical workers at the disposal.</p> <p>PC-6.5. Being able to provide internal control of quality and safety of medical activities within the scope of employment responsibilities.</p>

**As a result of studying the discipline, the student must:**

**Know:**

- the structure and functions of the human immune system, its age characteristics and features of the formation of various types of immunopathology;
- molecular and cellular mechanisms of the development and functioning of the immune system, the main types of allergic diseases and the distinctive features of the development and course of allergic diseases and other types of immunopathology;
- clinical and laboratory methods for the diagnosis of major allergic diseases, methods for assessing the immune and allergic status, principles for assessing clinical and laboratory immuno- and allergological parameters;
- modern in vivo and in vitro diagnostic methods, including methods of molecular allergology \, used in modern diagnostics of allergies;
- indications for the use of modern pharmaco-therapeutic drugs, monoclonal antibodies and other methods of biological therapy for major allergic diseases;

**Be able to:**

- comply with safety regulations and work in immunological and allergological laboratories with the test material, reagents, devices.
- substantiate the need for clinical and allergic examination of the patient;
- to evaluate the results of the main diagnostic laboratory parameters of patients with allergic diseases;
- choose the correct, optimal tactics of specific and non-specific therapy and prevention of allergic diseases

**Own:**

- methods of clinical diagnosis and assessment of allergic and immune status;
- methods of specific allergy vaccination

#### 4. Scope of discipline and types of educational work

The total workload of the course is 2 credit units

Type of educational work	Total hours	Semester			
		11			
<b>Classroom lessons (total)</b>	<b>34</b>	<b>34</b>			
Including:	-	-		-	-
Lectures					
Practical lessons (PL)	34	34			
Seminars (S)					
Laboratory work (LW)					
<b>Independent work (total)</b>	<b>38</b>	<b>38</b>			
<b>Total labor intensity</b>	<b>72</b>	<b>72</b>			
hour credits units	<b>2</b>	<b>2</b>			

#### 5. Content of the discipline

##### 5.1. Contents of discipline sections

№ n/n	The name of the discipline section	Section Contents
1.	Organization of allergy care and public health issues.	Organizational principles of care for patients with allergic diseases and immunodeficiencies. Organization of allergic and immunological assistance. The main provisions of the organization of allergological and immunological services
2.	Assessment of the state of the human immune system.	Immune status. Methods for its assessment. Specific diagnostics of allergic diseases. Allergic history. Skin tests with allergens, provocative allergy tests. Basic laboratory methods of specific diagnostics in practical allergology. Specific in vitro diagnostics of allergic diseases. Molecular allergological methods for the specific diagnosis of allergies.
3	General questions of allergology.	Allergens and their classification. Classification and pathogenesis of allergic reactions. The role of IgE in the development and course of immediate allergic reactions. Early and late phases of allergic reactions, the role of immune response mediators (cytokines, chemokines, growth factors and metabolites of arachidonic acid). Immunocomplex and cytotoxic types of allergic diseases: types and features of the course. Delayed allergic reactions, clinical manifestations, pathogenesis, cellular and humoral mechanisms of development and course of diseases.
4	Allergic skin diseases	Epidemiology, genetic basis of development, pathogenesis.

		Differential diagnosis with non-allergic skin diseases. International and Russian consensus on the diagnosis and treatment of atopic dermatitis. Specific diagnosis of atopic dermatitis. Modern methods of pharmacotherapy and immunotherapy of atopic skin diseases. The value of monoclonal anti-receptor and anti-cytokine antibodies in the treatment of atopic dermatitis.
5.	Bronchial asthma	Epidemiology, classification, etiology and pathogenesis of various forms of bronchial asthma. International and Russian consensus on the diagnosis and treatment of bronchial asthma.
6	Allergic rhinitis and rhinoconjunctivitis	Classification, etiology, pathogenesis. The role of various allergens in the etiology of rhinitis. The importance of rhinitis in the pathogenesis of bronchial asthma. The clinical picture of seasonal and perennial allergic rhinitis and rhinoconjunctivitis. Specific diagnostics and differential diagnostics. Antihistamines in the treatment of allergic rhinitis and rhinoconjunctivitis. Methods of specific allergic vaccination in the prevention and treatment of rhinitis and rhinoconjunctivitis.
7.	Pollen allergy	Allergic rhinitis and rhinoconjunctivitis of pollen etiology. The properties of pollen from various allergenic plants. Allergenic plants flowering calendar. Etiology, clinic, diagnostics of pollinosis. Distinctive features of pollinosis from other types of rhinitis. Cross allergy with pollinosis. Molecular allergology methods in the diagnosis of cross-allergy in hay fever. Methods of specific allergy diagnostics and allergen-specific immunotherapy for pollinosis. Methods of staged therapy of various stages of the disease. Modern methods of pharmacotherapy. Combined drugs, anti-IgE- and other types of biological therapy (monoclonal anti-cytokine, anti-receptor antibodies).
8.	Urticaria and angioedemas	Classification of urticaria. Clinical features of the course of various types of urticaria. Combined forms of urticaria and angioedema. Hereditary and acquired Quincke's edema: differential diagnosis, differences in pathogenesis and clinical presentation. Modern methods of therapy for urticaria and angioedema.
9.	Drug allergy	Major drug allergens. Mechanisms of drug allergy development. Cross-properties of drugs and their importance in the formation of drug allergies. Diagnosis of drug allergies. Possibilities of in vivo and in vitro diagnostics. Features of the clinical course.
10.	Food allergy	Types of major food allergens. The structure of major food allergens. Cross-allergic reactions to food and non-food allergens. Age features of the formation of food allergies.

		Concept from allergic march. Clinical features of the course of food allergy. Clinical features of atopic dermatitis in food allergy. Methods for the prevention and treatment of food allergies.
11.	Anaphylactic shock	Causal factors for the development of anaphylactic shock. Features of the clinical picture of anaphylactic shock. Urgent therapy for anaphylactic shock.
12.	Pseudo-allergic reactions.	Distinctive features of allergic reactions and intolerance reactions (pseudo-allergic reactions). The role of various food products and their components, drugs, food contaminants, toxic products and other factors in the development of clinical manifestations of intolerance. The clinical picture of pseudo-allergic reactions, the possibility of diagnosis and therapy.

## 5.2 Sections of disciplines and types of classes

№ п/п	Section name	Lectures	Practical Lessons	Lab. Lessons	Seminars	Students independent work (SIW)	Total hours
1.	Organization of allergy care and public health issues.		2			2	4
2.	Assessment of the state of the human immune system.		2			3	5
3	General questions of allergology.		3			4	7
4	Allergic skin diseases		4			4	8
5	Bronchial asthma		4			4	8
6	Allergic rhinitis and rhinoconjunctivitis		3			4	7
7	Pollen allergy		2			2	4
8	Urticaria and angioedemas		4			4	8
9	Drug allergy		2			2	4
10	Food allergy		3			3	6
11	Anaphylactic shock		3			3	6
12	Pseudo-allergic reactions.		2			3	5
	<b>Total</b>		<b>34</b>			<b>38</b>	<b>72</b>

**6. Laboratory workshop is not provided.**

**7. Practical training**



№ п/п	Section name	Name of practical work	Labour Intensity (hours)
1.	Organization of allergy care and public health issues.	Organizational principles of care for patients with allergic diseases and immunodeficiencies. Organization of allergic and immunological assistance. The main provisions of the organization of allergological and immunological services.	2
2.	Assessment of the state of the human immune system.	Immune status. Methods for its assessment. Specific diagnostics of allergic diseases. Allergic history. Skin tests with allergens, provocative allergy tests. Basic laboratory methods of specific diagnostics in practical allergology. Specific in vitro diagnostics of allergic diseases. Molecular allergological methods for the specific diagnosis of allergies.	2
3	General questions of allergology.	Allergens and their classification. Classification and pathogenesis of allergic reactions. The role of IgE in the development and course of immediate allergic reactions. Early and late phases of allergic reactions, the role of immune response mediators (cytokines, chemokines, growth factors and metabolites of arachidonic acid). Immunity complex and cytotoxic types of allergic diseases: types and features of the course. Delayed allergic reactions, clinical manifestations, pathogenesis, cellular and humoral mechanisms of development and course of diseases.	3
4	Allergic skin diseases	Epidemiology, genetic basis of development, pathogenesis. Differential diagnosis with non-allergic skin diseases. International and Russian consensus on the diagnosis and treatment of atopic dermatitis. Specific diagnosis of atopic dermatitis. Modern methods of pharmaco- and immunotherapy of atopic skin diseases. The efficacy of monoclonal antibodies and other biologics in the treatment of atopic dermatitis.	4
5	Bronchial asthma	Epidemiology, classification, etiology and pathogenesis of various forms of bronchial asthma. International and Russian consensus on the diagnosis and treatment of bronchial asthma. Methods of staged therapy of various stages of the disease. Modern methods of pharmacotherapy. Combined drugs, anti-IgE- and other types of biological therapy (monoclonal anti-cytokine, anti-receptor antibodies).	4
6	Allergic rhinitis and conjunctivitis.	Classification, etiology, pathogenesis. The role of various allergens in the etiology of rhinitis. The importance of rhinitis in the pathogenesis of bronchial asthma. The clinical	3

		picture of seasonal and perennial allergic rhinitis and rhinoconjunctivitis. Specific diagnostics and differential diagnostics. Antihistamines in the treatment of allergic rhinitis and rhinoconjunctivitis. Methods of specific allergic vaccination in the prevention and treatment of rhinitis and rhinoconjunctivitis.	
7	Pollen allergy	Allergic rhinitis and rhinoconjunctivitis of pollen etiology. The properties of pollen from various allergenic plants. Allergenic plants flowering calendar. Etiology, clinic, diagnostics of pollinosis. Distinctive features of pollinosis from other types of rhinitis. Cross allergy with pollinosis. Molecular allergology methods in the diagnosis of cross-allergy in hay fever. Methods of specific allergy diagnostics and allergen-specific immunotherapy for pollinosis.	2
8	Urticaria and angioedemas	Classification of urticaria. Clinical features of the course of various types of urticaria. Combined forms of urticaria and angioedema. Hereditary and acquired Quincke's edema: differential diagnosis, differences in pathogenesis and clinical presentation. Modern methods of therapy for urticaria and angioedema.	4
9	Drug allergy	Major drug allergens. Mechanisms of drug allergy development. Cross-properties of drugs and their importance in the formation of drug allergies. Diagnosis of drug allergies. Possibilities of in vivo and in vitro diagnostics. Features of the clinical course.	3
10	Food allergy	Types of major food allergens. The structure of major food allergens. Cross-allergic reactions to food and non-food allergens. Age features of the formation of food allergies. Concept from allergic march. Clinical features of the course of food allergy. Clinical features of atopic dermatitis in food allergy. Methods for the prevention and treatment of food allergies.	3
11	Anaphylactic shock	Causal factors for the development of anaphylactic shock. Features of the clinical picture of anaphylactic shock. Urgent therapy for anaphylactic shock.	3
12	Pseudo-allergic reactions	Distinctive features of allergic reactions and intolerance reactions (pseudo-allergic reactions). The role of various food products and their components, drugs, food contaminants, toxic products and other factors in the development of clinical manifestations of intolerance. The clinical picture of pseudo-allergic reactions, the possibility of diagnosis and therapy.	2

## **8. Material and technical support of the discipline:**

- 1) Multimedia complexes (laptop, projector, screen)
- 2) Computers
- 3) Microscopes
- 4) Centrifuge
- 5) ELISA analyzer
- 6) Chemiluminescence analyzer
- 7) Refrigerator
- 8) Dispensing pipettes
- 9) Reagents:
  - a. Diagnostic test systems for the determination of specific IgE antibodies by the chemiluminescent method
  - b. Diagnostic test systems for the determination of specific IgE antibodies by enzyme immunoassay

## **9. Information support of the discipline:**

Each student during the entire period of study is provided with individual unlimited access to the following electronic library systems:

1. RUDN Electronic Library System - RUDN University Library System  
<http://lib.rudn.ru/MegaPro/Web>
2. University library online <http://www.biblioclub.ru>
3. <http://www.biblio-online.ru>
4. <http://www.elibrary.ru>
5. <http://www.student.library.ru>
6. <http://www.e.lanbook.com>
7. <http://www.aids.ru>
8. <http://www.immunologia.ru>
9. <http://www.eaaci.org>

## **10. Educational and methodological support of the discipline:**

### **a) main literature**

1. [Peter J. Delves](#), [Seamus J. Martin](#), [Dennis R. Burton](#), [Ivan M. Roitt](#) . Wiley-Blackwell, January 2017
2. Abul Abbas Andrew H. Lichtman Shiv Pillai. Basic Immunology Elsevier. 6th Edition. . 2019.
3. Allergology and immunology: national guidelines / Edited by R.M. Khaitova, N.I. Ilyina. M .: GEOTAR-Media, 2016 .-- 656 p.
4. Khaitov R.M. Immunology (textbook). M .: GEOTAR-Media, 2020 .-- 720 p.

### **b) additional literature**

1. Kovalchuk L.V., Gankovskaya L.V., Meshkova R.Ya. Immunology (workshop). M .: GEOTAR-Media, 2016 .-- 640 p.

## **11. Methodical instructions for students on mastering the discipline "Allergology"**

Teaching students helps them develop the skills of communicating with the patient, taking into account the ethical and deontological characteristics of pathology and patients. For the successful mastering of the discipline, students are required to independently prepare for practical exercises, familiarize themselves with the recommended basic and additional literature. Independent work of students implies preparation for practical work and includes the study of lectures, independent study of certain topics from a textbook and other literature, preparation for entrance and current control, writing an essay. The student's independent work contributes to the formation of ethical behavior, accuracy, discipline in students. When dealing with other members, be polite and respectful.

## **12. Fund of assessment tools for intermediate certification of students in the discipline "Allergology"**

Materials for assessing the level of mastering the educational material of the discipline "Allergology", including a list of competencies with an indication of the stages of their formation, a description of indicators and criteria for assessing competencies at various stages of their formation, a description of the assessment scales, typical control tasks or other materials necessary for assessing knowledge, abilities, skills and (or) experience of activity, characterizing the stages of the formation of competencies in the process of mastering the educational program, methodological materials defining the procedures for assessing knowledge, skills, skills and (or) experience of activities, characterizing the stages of formation of competencies, are developed in full and are available for students on the discipline page at TUIS RUDN.

The program is compiled in accordance with the requirements of the Federal State Educational Standard of Higher Education.

### **Developers:**

Professor

Department of Dermatovenereology and Allergology  
with the course of immunology

R.A. Khanferyan

### **Head of the Department**

Department of Dermatovenereology and Allergology  
with the course of immunology

O.V. Zhukova

### **Head of the Program**

**I.V.Radysh**