

## SYLLABUS

concerning the cycle of education **2020-2026**.....  
(date range)

Academic year 2024/2025

**1. BASIC INFORMATION CONCERNING THIS SUBJECT**

Subject	Clinical immunology
Course code *	ImK / C
Faculty of (name of the leading direction)	Medical College of Rzeszow University
Department Name	Medical College of Rzeszow University
Field of study	medical direction
level of education	uniform master's studies
Profile	practical
Form of study	stationary / extramural
Year and semester	year V, semester X
Type of course	obligatory
Language	
Coordinator	Prof. Jacek Tabarkiewicz
First and Last Name of the Teachers	

\* - According to the resolutions of Educational Unit

**1.1. Forms of classes, number of hours and ECTS**

Semester No.	Lecture	Exercise	Conversation	Laboratory	Seminar	Z P	Praktical	Other	Number of points ECTS
X	15	15	-	-	15	-	-		4

**1.2. The form of class activities**

X classes are in the traditional form

- classes are implemented using methods and techniques of distance learning

### 1.3 Examination Forms (exam, credit with grade or credit without grade)

## 2. BASIC REQUIREMENTS

Basic immunology. Laboratory diagnosis. Propedeutics of oncology. Propedeutics of infectious diseases. Propedeutics of pediatrics.

## 3. OBJECTIVES, OUTCOMES, AND PROGRAM CONTENT USED IN TEACHING METHODS

### 3.1 Objectives of this course

C1	Understanding of immune disorders in the pathomechanism of human diseases
C2	Ability to use methods of testing immunological parameters and the principles of selection of tests in differential of human diseases.
C3	Ability to use immunostimulation, immunoregulation, immunomodulation, immunosuppression in the therapy of human diseases.

### 3.2 OUTCOMES FOR THE COURSE

EK (the effect of education)	The content of learning outcomes defined for the class (module)	Reference to directional effects <sup>1</sup>
EK_01	knows the basics of development and mechanisms of the immune system, including specific and non-specific mechanisms of humoral and cellular immunity	C.W20
EK_02	describes the major histocompatibility complex	C.W21
EK_03	knows types of hypersensitivity reactions, types of deficiencies	C.W22
EK_04	knows issues in the field of cancer immunology	C.W23
EK_05	knows the issues of resistance and the basics of immunomodulation; defines the genetic basis of selection of donor and recipient and the basis of transplantation immunology	C.W24
EK_06	knows the basic directions of therapy development, in particular the possibilities of cell therapy and gene therapy and targeted therapy in specific diseases	C.W41
EK_07	knows the principles of nutrition for healthy and sick children, immunization and keeping the child's health balance	E.W2
EK_08	knows and understands the causes, symptoms, principles of diagnosis and therapeutic treatment in the case of the most common diseases of children: a) anaphylactic shock, angioedema edema;	E.W3

<sup>1</sup>In the case of a path of education leading to obtaining teaching qualifications, also take into account the learning outcomes of the standards of education preparing for the teaching profession.

	<p>b) anemia, haemorrhagic diathesis, bone marrow failure, childhood cancers, including solid tumors typical of childhood;</p> <p>c) acute and chronic abdominal pain, vomiting, diarrhea, constipation, gastrointestinal bleeding, peptic ulcer disease, inflammatory bowel disease, pancreatic disease, cholestestaisis and liver diseases, and other acquired and congenital gastrointestinal disoreds,</p> <p>d) growth disorders, thyroid and parathyroid diseases, adrenal diseases, diabetes, obesity, puberty disorders and gonadal function</p> <p>e) connective tissue diseases, rheumatic fever, juvenile arthritis, systemic lupus, dermatomyositis</p>	
EK_09	<p>knows and understands the causes, symptoms, principles of diagnosis and therapeutic treatment in relation to the most common internal diseases occurring in adults and their complications:</p> <p>a) respiratory diseases, including: respiratory diseases, chronic obstructive pulmonary disease, bronchial asthma, bronchiectasis, cystic fibrosis, respiratory infections, interstitial lung diseases, pleura, mediastinum, obstructive and central sleep apnea, respiratory failure (acute and chronic ), respiratory cancers,</p> <p>b) diseases of the digestive system, including diseases of the mouth, esophagus, stomach and duodenum, intestines, pancreas, liver, bile ducts and gallbladder,</p> <p>c) diseases of the endocrine system, including diseases of the hypothalamus and pituitary, thyroid, parathyroid, cortex and adrenal medulla, ovaries and testicles, as well as neuroendocrine tumors, polyglandular syndromes, various types of diabetes and metabolic syndrome: hypoglycaemia, obesity, dyslipidemia,</p> <p>d) hematopoietic system diseases, including: bone marrow aplasia, anemia, granulocytopenia and agranulocytosis, thrombocytopenia, acute leukemias, myeloproliferative and myelodysplastic-myeloproliferative tumors, myelodysplastic syndromes, mature B and T cell tumors, bleeding disorders, thrombophilia, imminent life-threatening conditions in hematology, blood disorders in diseases of other organs;</p> <p>e) rheumatic diseases, including: connective tissue systemic diseases, systemic vasculitis, arthritis with spine involvement, bone metabolic diseases, in particular osteoporosis and osteoarthritis, gout,</p> <p>f) allergic diseases, including: anaphylaxis and anaphylactic shock and angioedema,</p>	E.W7
EK_10	<p>knows and understands the course and symptoms of the aging process, as well as the principles of overall geriatric assessment and interdisciplinary care in relation to the elderly patient</p>	E.W8
EK_11	<p>knows and understands the causes, symptoms, principles of diagnosis and therapeutic treatment in the most common diseases of the nervous system, including:</p>	E.W14

	a) infections of the nervous system, in particular meningitis, Lyme disease, herpetic encephalitis, neurotransmission diseases, b) Demyelination diseases, in particular multiple sclerosis	
EK_12	knows the possibilities of modern cancer therapy (including multimodal therapy), perspectives of cell and gene therapies and their undesirable effects	E.W25
EK_13	knows and understands the causes, symptoms, principles of diagnosis and therapeutic and prophylactic treatment in the most common bacterial, viral, parasitic and fungal diseases, including pneumococcal infections, viral hepatitis, acquired AIDS immune deficiency, sepsis and nosocomial infections	E.W.32
EK_14	knows the basic features, environmental and epidemiological conditions of the most common human skin diseases	E.W33
EK_15	knows the types of biological materials used in laboratory diagnostics and the principles of collecting material for testing	E.W37
EK_16	knows the reproductive functions of women, related disorders, as well as diagnostic and therapeutic procedures concerning, in particular: a) menstrual cycle and its disorders, b) pregnancy	F.W9
EK_17	uses antigen-antibody challenge in current modifications and techniques for diagnostics of infectious, allergic, autoimmune diseases, blood and cancer diseases	C.U8
EK_18	combines images of tissue and organ damage with clinical symptoms of the disease, medical history and results of laboratory tests	C.U11
EK_19	analyzes the reactive, defensive and adaptive phenomena and regulation disturbances caused by the etiological factor	C.U12
EK_20	plans and performs simple scientific research and interprets its results and draws conclusions	B.U14
EK_21	plans diagnostic, therapeutic and prophylactic procedures	E.U16
EK_22	interprets laboratory tests and identifies the causes of deviations	E.U24
EK_23	applies nutritional treatment (including enteral and parenteral nutrition)	E.U25
EK_24	qualifies the patient for vaccination	E.U27
EK_25	collects material for tests used in laboratory diagnostics	E.U28
EK_26	plans specialist consultations	E.U32
EK_27	he is guided by the good of the patient, placing them in the first place	K.02

### 3.3 CONTENT CURRICULUM

#### A. Problems of the lecture

#### B. Problems of auditorium, seminar, laboratory and practical classes

Course contents	Hours
<b>A. Problems of the lectures</b>	
1. Stem cells - a type, use in the therapy of human diseases	
2. Skin as an element of the immune system	
3. Aging of the immune system	
4. Diet and the immune system. Immunonutrition	

<b>B. Problems of auditorium, seminar, laboratory and practical classes</b>	
1. The rules for the selection of donor and recipient	
2. Modern methods of assessing donor-recipient compliance	
3. Transplant immunology.	
4. Mechanisms of action of immunosuppressive drugs used in transplantology	
5. Immunological basis of transplant rejection and other transplantation complications, eg GVHD	
6. Autoimmune diseases. The role of the immune system in the pathogenesis of rheumatic diseases, selected diseases of the gastrointestinal tract, nervous system, endocrine system. The use of immunological parameters in diagnostics. Immunological basis of therapy for autoimmune diseases.	
7. Advanced medical therapies using elements of the immune system	
8. Hospital applications of advanced therapy medicinal products (HE-ATMP)	
9. Working principles in the GMP environment	
10. Principles of conducting and use of Tissue and Cell Banks	
11. Allergic diseases. Basic definitions. Allergens. Etiopathogenesis. Diagnostics with particular emphasis on antigen-antibody. Treatment with special emphasis on immunotherapy specific	
12. Causes, symptoms, principles of diagnosis and therapeutic and prophylactic treatment (qualification for protective vaccinations and immunomodulation) in the most common bacterial, viral, parasitic and fungal diseases, including pneumococcal infections, hepatitis, acquired immunodeficiency AIDS, sepsis and nosocomial infections - with particular emphasis on specific and nonspecific immune responses	
13. Cancer oncogenesis and immunology - aberrations of autosomes and heterosomes that cause disease, including cancer	
14. Oncogenesis mechanisms	
15. Tumors with a known etiological factor	
16. Antigens related to cancer	
17. Immune diagnosis of tumors	
18. Gene therapy, targeted and cellular therapy	
19 Antibody as a medicine	
20. Use of monoclonal antibodies	
21. The use of IVIG	
22. Immunosuppressive and immunomodulating treatments	
23. Reproductive immunology	
24. Immunohematology. Immunopathogenesis of proliferative diseases of the hematopoietic system. Acquired haemorrhagic diathesis as an autoimmune disease.	

### 3.4 Didactic methods

**Lecture:** lecture with multimedia presentation

**Exercises, seminars:** working in groups, solving tasks, discussion

#### 4. METHODS AND EVALUATION CRITERIA

##### 4.1 Methods of verification of learning outcomes

Symbol of effect	Methods of assessment of learning outcomes (Eg.: tests, oral exams, written exams, project reports, observations during classes)	Form of classes
EK_ 01-26	colloquium, exam	Exercises, Seminars, Lecture
EK_ 27	observations during the class	Exercises

##### 4.2 Conditions for completing the course (evaluation criteria)

**Lectures** - pass with oral or written assessment test pass and open questions:

A: Questions in the field of messages to remember;

B: Questions in the field of speech to understand;

C: Solving a typical written task;

D: Solving an atypical writing task;

- for insufficient solution of tasks only from areas A and B = grade 2.0

- for solving tasks only from areas A and B, the possibility of obtaining max. rating 3.0

- for solving tasks from the area A + B + C, the possibility of obtaining max. evaluation 4.0

- for the solution of tasks in the area A + B + C + D, the possibility of obtaining a rating of 5.0

**classes, seminars** - credit with grade including student's skills, full participation in classes, grades from partial tests

**Knowledge assessment:**

5.0 - the student demonstrates knowledge of each of the education content at the level of 88- 100%

4.0 - the student demonstrates knowledge of each of the content of education at the level of 74-87%

3.0 - the student has knowledge of each of the content of education at the level of 60-73%

2.0 - the student has knowledge of each of the contents of education below 60%

**Skill assessment:**

5.0 - the student actively participates in the classes, is well prepared, correctly interprets the dependencies and is able to draw the right conclusions, recognizes correctly under the microscope the basic structural elements

4.5 - the student actively participates in classes, with little help from the teacher, correctly interprets the occurring phenomena, recognizes the basic structural elements correctly under the microscope

4.0 - the student actively participates in classes, with more help from the teacher, he is improved, he cannot always solve the problem himself and recognize the basic structural elements under the microscope

3.5 - the student participates in classes, his scope of preparation does not allow for a comprehensive presentation of the discussed problem, he draws incorrect conclusions without help and incorrectly recognizes under the microscope the basic structural elements

3.0 - the student participates in classes, formulates conclusions requiring correction from the teacher, but commits minor mistakes, not fully understanding the causal relationships and connections, commits a lot of errors while recognizing under the microscope the basic structural elements

2.0 - the student passively participates in classes, his statements are incorrectly substantive, he does not understand problems, he incorrectly recognizes basic structural elements under the microscope

## 5. Total student workload required to achieve the desired result in hours and ECTS credits

Activity	The average number of hours to complete the activity
Contact hours (with the teacher) resulting from the study schedule of classes	
Contact hours (with the teacher) participation in the consultations, exams	
Non-contact hours - student's own work (preparation for classes, exam, writing a paper, etc.)	
SUM OF HOURS	160
TOTAL NUMBER OF ECTS	4

*\* It should be taken into account that 1 ECTS point corresponds to 25-30 hours of total student workload.*

## 6. TRAINING PRACTICES IN THE SUBJECT

<b>NUMBER OF HOURS</b>	-
<b>RULES AND FORMS OF APPRENTICESHIP</b>	-

## 7. LITERATURE

<p>Basic literature:</p> <ol style="list-style-type: none"> <li>1. IMMUNOLOGY 9<sup>TH</sup> EDITION MALE D., STOKES PEEBLED R. JR., MALE V., ELSEVIER 2019</li> <li>2. CLINICAL IMMUNOLOGY, PRINCIPLES AND PRACTICE. 6TH EDITION, ROBERT R. RICH &amp; THOMAS A. FLEISHER &amp; HARRY W. SCHROEDER JR. &amp; CORNELIA M. WEYAND &amp; DAVID B. CORRY &amp; JENNIFER M. PUCK ELSEVIER 2022</li> </ol>
<p>Additional literature</p> <ol style="list-style-type: none"> <li>1. Basic Immunology Functions and Disorders of the Immune System Author: Abul K. Abbas Andrew H. H. Lichtman 6th revised edition November 2019</li> <li>2. Roitt's Essential Immunology Author: Peter J. Delves Seamus J. Martin Ivan M. Roitt Dennis R. Burton 13th Edition January 2017.</li> <li>3. Cellular and Molecular Immunology, 10th Edition 2021 Authors: Abul K. Abbas &amp; Andrew H. Lichtman &amp; Shiv Pillai</li> </ol>

Acceptance Unit Manager or authorized person