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Federal State Autonomous Educational Institution of Higher Education

PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
RUDN University

Institute of Medicine

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educational division (faculty/institute/academy) as higher education programme developer

COURSE SYLLABUS

IMMUNOLOGY, CLINICAL IMMUNOLOGY

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course title

Recommended by the Didactic Council for the Education Field of:

31.05.03 Dentistry

field of studies / speciality code and title

The course instruction is implemented within the professional education programme ofhigher education:

Dentistry

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higher education programme profile/specialisation title

2022-2023

1. COURSE GOAL(s)

The goal of the course "Immunology, Clinical immunology" is toform students' modern knowledge about the structure and functions of the immune system, types of immunity; distinctive characteristics of immune reactions under normal or pathological conditions; methods of clinical, laboratory and instrumental diagnostics, traditional and innovative directions in prevention, treatment of patients with immunopathology.

2. REQUIREMENTS FOR LEARNING OUTCOMES

Mastering the course (module) «**Immunology, clinical immunology»** is aimed at the development of the following competences /competences in part: **General Competences – (UC)-1, General Professional Competences – (GPC)-9, 13, Professional Competences – (PC)-6.**

Table 2.1. List of competences that students acquire through the course study

Competence code	**Competence descriptor**	**Competence formation indicators** (within this course)
UC-1	Being able to implement critical analysis of problem situations based on systems approach, develop an action strategy	UC-1.1. Analyzing the problem situation as a system identifying its components and links between them.
GPC-9	Being able to assess morpho-functional, physiological conditions and pathological processes in the human body to solve professional tasks	GPC-9.3. Determining morpho-functional, physiological states and pathological processes of the human body.
GPC-13	Being able to understand the operation principles of modern IT and use them to solve the professional tasks	GPC-13.1. Using information technology in professional activity and observing the information security rules. Information and communication media and technology in professional activity.
PC-6	Being able to analyze and present in public medical information based on evidence-based medicine, participate in scientific research, introduce new methods and techniques aimed at protecting public health	PC-6 Searching for medical information based on evidence-based medicine, interpreting data from scientific publications and/or preparing a presentation to make medical information, the results of scientific research public.

3.COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The course refers to the core/variable/elective* component of (B1) block of the higher educational programme curriculum.

* - Underline whatever applicable.

Within the higher education programme students also master other (modules) and / or internships that contribute to the achievement of the expected learning outcomes as results of the course study.

Table 3.1. The list of the higher education programme components/disciplines that contribute to the achievement of the expected learning outcomes as the course study

Competence code	Competence descriptor	Previous courses/modules*	Subsequent courses/modules*
UC-1	Being able to implement critical analysis of problem situations based on systems approach, develop an action strategy	School disciplines of the natural science cycle	Pathological anatomy Pathophysiology Forensic medicine Internal medicine Radiodiagnostics Emergency Medicine Infectious diseases Epidemiology Obstetrics Pediatrics General surgery Surgical diseases
GPC-9	Being able to assess morpho-functional, physiological conditions and pathological processes in the human body to solve professional tasks	School disciplines of the natural science cycle	Pathological anatomy Pathophysiology Forensic medicine Internal medicine Radiodiagnostics Emergency Medicine Infectious diseases Epidemiology Obstetrics Pediatrics General surgery Surgical diseases
GPC-13	Being able to understand the operation principles of modern IT and use them to solve the professional tasks	School disciplines of the natural science cycle	Pathological anatomy Pathophysiology Forensic medicine Internal medicine Radiodiagnostics Emergency Medicine Infectious diseases Epidemiology Obstetrics Pediatrics

			General surgery Surgical diseases Preventive dentistry Propaedeutic dentistry Therapeutic dentistry Dental surgery Orthopedic dentistry General Dentistry
PC-6	Being able to analyze and present in public medical information based on evidence-based medicine, participate in scientific research, introduce new methods and techniques aimed at protecting public health	Pathophysiology, clinical pathophysiology	Epidemiology

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the course "**Immunology, clinical immunology"** is 4 credits (144 academic hours).

*Table 4.1. Types of academic activities during the periods of higher education programme mastering (**full-time training**)**

Type of academic activities		**Total academic hours**	**Semesters/training modules**
			4
Contact academic hours		**72**	**72**
including:			
Lectures (LC)		**36**	**36**
Lab work (LW)		**36**	**36**
Seminars (workshops/tutorials) (S)		-	-
Self-studies		*72*	*72*
Evaluation and assessment (exam/passing/failing grade)		-	-
Course workload	academic hours_	**144**	**144**
	credits	**4**	**4**

5. COURSE CONTENTS

Table 5.1. Course contents and academic activities types

Course module title	Course module contents (topics)	Academic activities types
Module 1 Basic immunology	**1.1.** Introduction to immunology	**Lec, Lab**
	1.2. The structure of immune system	**Lec, Lab**
	1.3. Innate immunity	**Lec, Lab**
	1.4. Adaptive immunity	**Lec, Lab**
Module 2 Clinical immunology	**2.1.** Pathology of the immunity	**Lec, Lab**
	2.2. Immunodiagnosis, immunoprophylaxis, immunotherapy	**Lec, Lab**

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Classroom equipment and technology support requirements

Type of academic activities	Classroom equipment	Specialised educational / laboratory equipment, software, and materials for course study (if necessary)
Lecture	Conference room equipped with a set of specialized furniture and digital equipment;	Camera; Communication Station-HP Compaq Pro/lntel Pentium E6300 / 2.8GHZ / DDR3 1300 / HDD320Gb / DVD +/- RWPCI Express x 16/2*Ethernet 10SATA 3/5/1 st Hard Drive; Projector for conference rooms EIKI LC-XB43N; speaker system.
Lab work	Classroom for lab work, individual consultations, self-studies equipped with a set of specialized furniture; whiteboard.	PC (Core i5 9400 unit, BENQ GW2480 23.8 monitor, BENQ GW2480 23.8 monitor)
Lab work	Classroom for seminar classes, consultations, intermediate certification, equipped with a set of specialized furniture and digital equipment	PC (monitor 19" Acer, Intel i7 8700/MV unit (GIGABYTE Z370); HP LaserJet Pro M227fdn laser MFP; PC (system block, monitor, mouse)
Computer Lab	Computer class for seminar classes, consultations, intermediate certification, equipped with a set of specialized furniture, personal computers (3 un.) and digital equipment	PC (AOC monitor 19", system block i3 7100/MV Asus/4Gb/240Gb SSD); MFP laser HP LaserJet MFP M132nw EN white
Self-studies	Classroom for self-studies of students (can be used for seminars and consultations), equipped with a set of specialized furniture, computers with stable wireless Internet connection.	LCD panel with VBA port; LED TV SUPRA 'STV-LC47660FL00

7. RESOURCES RECOMMENDED FOR COURSE STUDY

Main readings:

Hardcover:

1. Immunology: textbook / R. M. Khaitov. - 4th ed., reprint. and add. - Moscow: GEOTAR-Media, 2021. - 520 p. - ISBN 978-5-9704-6398-7.
2. R.I. Sepiashvili. Physiology of the immune system: monograph. M.: Medicine - Health, 2019. - 338 p.

Electronic sources:

1. Immunology [Electronic resource]: textbook / R. M. Khaitov. - 4th ed., reprint. and add. - Moscow: GEOTAR-Media, 2021. - 520 p. - ISBN 978-5-9704-6398-7. https://www.studentlibrary.ru/book/ISBN9785970463987.html
2. Immunology. [Electronic resource]: atlas / Khaitov R. M., Garib F. Yu. - Moscow: GETAR-Media, 2020. - 416 p. - ISBN 978-5-9704-5525-8. – https://www.studentlibrary.ru/book/ISBN9785970455258.html
3. Immunology [Electronic resource]: textbook / Yarilin A. A. - Moscow: GEOTAR-Media, 2010. - 752 p. - ISBN 978-5-9704-1319-7. – https://www.studentlibrary.ru/book/ISBN9785970413197.html

Additional readings:

Hardcover:

1. R.I. Sepiashvili, I.P. Balmasova M. Physiology of natural killers. Medicine-Health, 2005. – 456 p

Electronic sources:

1. Immunology: Structure and functions of the immune system / Khaitov R. M. - Moscow: GEOTAR-Media, 2019. - 328 p. - ISBN 978-5-9704-4962-2. - https://www.studentlibrary.ru/book/ISBN9785970449622.html
2. Allergology and clinical immunology / edited by R. M. Khaitova, N. I. Ilyina - Moscow: GEOTAR-Media, 2019. - 336 p. (Series "Clinical Recommendations") - ISBN 978-5-9704-5010-9.
3. https://www.studentlibrary.ru/book/ISBN9785970450109.html
4. Basic immunology with the basics of clinical immunology: textbook. manual / A.V. Moskalev, V. B. Sboychakov, A. S. Rudoy. - Moscow: GEOTAR-Media, 2015. - 352 p. - ISBN 978-5-9704-3382-9.
5. https://www.studentlibrary.ru/book/ISBN9785970433829.html
6. Microbiology, virology, immunology of the oral cavity: textbook / edited by V. N. Tsarev. - 2nd ed., reprint. and add. - Moscow: GEOTAR-Media, 2021. - 720 p. - ISBN 978-5-9704-6260-7. –
7. https://www.studentlibrary.ru/book/ISBN9785970462607.html

Internet (based) sources:

1. Electronic libraries with access for RUDN students:
   - Electronic library network of RUDN – ELN RUDN http://lib.rudn.ru/MegaPro/Web
   - ELN «University Library online» http://www.biblioclub.ru
   - ELN Urait http://www.biblio-online.ru
   - ELN «Student Advisor» www.studentlibrary.ru

- ELN «Lan» http://e.lanbook.com/

2. Databases and search engines:
   - Database elibrary.ru - scientific electronic library. The link:
   - http://elibrary.ru/defaultx.asp/
   - Electronic libraries with access for RUDN students. The link: http://lib.rudn.ru/MegaPro/Web/
   - Electronic library of the medical university. The link:
   - http://www.studmedlib.ru/
   - National Center for Biotechnological Information. The link:
   - https://www.ncbi.nlm.nih.gov/

*Training toolkit for self- studies to master the course *:*

1. The set of lectures on the course "Immunology, Clinical Immunology"

* The training toolkit for self- studies to master the course is placed on the course page in the university telecommunication training and information system under the set procedure.

8. ASSESSMENT TOOLKIT AND GRADING SYSTEM* FOR EVALUATION OF STUDENTS' COMPETENCES LEVEL UPON COURSE COMPLETION

The assessment toolkit and the grading system* to evaluate the competences formation level (UC-1; GPC-9, 13; PC-6) upon the course study completion are specified in the Appendix to the course syllabus.

* The assessment toolkit and the grading system are formed on the basis of the requirements of the relevant local normative act of RUDN University (regulations / order).

DEVELOPERS:

Professor of the Immunology department		E.A. Levkova
position, department	signature	name and surname
Professor of the Immunology department		A.D. Donetskova
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HEAD OF EDUCATIONAL DEPARTMENT:

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HEAD
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