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**Federal State Autonomous Educational Institution of Higher Education  
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA named after  
Patrice Lumumba  
RUDN University**

**Institute of Medicine**

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

**COURSE SYLLABUS**

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**Pathophysiology – Pathophysiology of Head and Neck**  
course title

**Recommended by the Didactic Council for the Education Field of:**

31.05.03 Dentistry

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field of studies / speciality code and title

**The course instruction is implemented within the professional education programme of higher education:**

Dentistry

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higher education programme profile/specialisation title

2023-2024

## 1. COURSE GOAL(s)

The goal of the course «Pathophysiology – Pathophysiology of Head and Neck» is to gain an understanding of the reasons, mechanisms of development and outcomes of standard pathological processes and diseases of separate bodies and systems which basis they make, including:

- studying of molecular, cellular, fabric, organ, system and intersystem mechanisms of standard pathological processes;
- studying of the reasons, mechanisms of development and outcomes of the concrete diseases developing in separate bodies and systems;
- analysis of the nature of clinical manifestations of the main pathological processes;
- acquaintance with the principles of pathogenic therapy of diseases of separate bodies and systems.

## 2. REQUIREMENTS FOR LEARNING OUTCOMES

Mastering the course (module) «Pathophysiology – Pathophysiology of Head and Neck» is aimed at the development of the following competences /competences in part: GC-1; GPC-9; PC-1.

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

<b>Competence code</b>	<b>Competence descriptor</b>	<b>Competence formation indicators (within this course)</b>
GC-1	Being able to implement critical analysis of problem situations based on systems approach, develop an action strategy.	GC-1.1. Analysing 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-9.1. Being able to use the algorithm of clinical, laboratory and functional diagnosis in dealing with professional tasks.
		GPC-9.2. Evaluating the results of clinical, laboratory and functional diagnosis in dealing with professional tasks.
		GPC-9.3. Determining morpho-functional, physiological states and pathological processes of the human body.
PC-1.	Being able to make an examination of a patient in order to determine a diagnosis.	PC-1.4. Detecting if patients have risk factors for oncopathology (including various background processes, precancerous conditions) based on laboratory, instrumental and additional examinations in order to make a preliminary/final diagnosis.

### 3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The course «**Pathophysiology – Pathophysiology of Head and Neck**» 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 results*

<b>Competence code</b>	<b>Competence descriptor</b>	<b>Previous courses/modules*</b>	<b>Subsequent courses/modules*</b>
GC-1	Being able to implement critical analysis of problem situations based on systems approach, develop an action strategy.	Philosophy, Psychology and Pedagogy, Physics, Mathematics, Biochemistry, Human Anatomy - Head and Neck Anatomy, Immunology, Clinical Immunology	Otorhinolaryngology, Obstetrics, Gnathology and functional diagnostics of the temporomandibular joint, Dental prosthetics (simple prosthetics), Prosthetics in the absence of teeth, Dental prosthetics (complex prosthetics), Pediatric maxillofacial surgery, Maxillofacial prosthetics, Pediatric dentistry, Orthodontics and pediatric prosthetics, Medical genetics in dentistry, Medical rehabilitation
GPC-9.	Being able to assess morpho-functional, physiological conditions and pathological processes in the human body to solve professional tasks	Biological Chemistry - Oral Biochemistry, Histology, Embryology, Cytology - Oral Histology, Normal Physiology, Maxillofacial Physiology, Microbiology, Virology - Oral Microbiology, Human Anatomy - Head and Neck Anatomy	Forensic medicine, Obstetrics, Local anesthesia and anesthesiology in dentistry, Oral surgery, Maxillofacial and gnathic surgery, Head and neck diseases, Pediatric dentistry, Orthodontics and pediatric prosthetics, Medical rehabilitation, Implantology and reconstructive oral surgery, Radiation diagnostics, Ophthalmology, Topographic anatomy and operative head and neck surgery, Medical elementology, Bioelements in medicine
PC-1.	Being able to make an examination of a patient	Immunology, clinical immunology	Life safety, Gnatology and functional diagnostics of the

	in order to determine a diagnosis.		temporomandibular joint, Prosthodontics (simple prosthetics), Prosthetics in the absence of teeth, Prosthetics of the dentition (complex prosthetics), Pediatric maxillofacial surgery, Maxillofacial prosthetics, Medical genetics in dentistry, Medical rehabilitation, Oncodentistry and radiation therapy
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\* To be filled in according with the competence matrix of the higher education programme.

#### 4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the course «**Pathophysiology – Pathophysiology of Head and Neck**» is **5** credits.

*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			
		5	6		
<i>Contact academic hours</i>	<b>125</b>	<b>71</b>	<b>54</b>		
including:					
Lectures (LC)	35	17	18		
Lab work (LW)	87	51	36		
Seminars (workshops/tutorials) (S)					
<i>Self-studies</i>	52	37	15		
<i>Evaluation and assessment (exam/passing/failing grade)</i>	6	3	3		
<b>Course workload</b>	academic hours_	<b>180</b>	<b>108</b>	<b>72</b>	
	credits	<b>5</b>	<b>3</b>	<b>2</b>	

\* To be filled in regarding the higher education programme correspondence training mode.

#### 5. COURSE CONTENTS

*Table 5.1. Course contents and academic activities types*

Course module title	Course module contents (topics)	Academic activities types
<b>Module 1</b> General nosology.	<b>Topic 1.1.</b> Conceptions of health and disease. Sano- и pathogenesis.	<b>LW, LC</b>
	<b>Topic 1.2.</b> Pathology of cellular biomembranes and organells. Types and mechanisms of cell death. Disorders of biorhythms of a cell.	<b>LW</b>
<b>Module 2</b> Non-specific pathological processes	<b>Topic 2.1.</b> Disorders of local blood circulation.	<b>LW</b>

	<b>Topic 2.2.</b> Inflammation. Features of inflammatory processes in the maxillofacial region. Traumatic lesions of oral tissues. Wound process and regeneration in dentistry.	<b>LW, LC</b>
	<b>Topic 2.3.</b> Pathogenesis of inflammatory diseases of the oral cavity. Pulpitis. Periodontitis. Gingivitis. Periodontitis. Rapidly progressive and juvenile periodontitis. Sialadenitis. Cheilitis. Glossitis.	<b>LW</b>
	<b>Topic 2.4.</b> The microflora of the oral cavity and its influence on the development of systemic and local pathological processes. Caries.	<b>LW</b>
	<b>Topic 2.5.</b> Mechanisms of immune protection. Pathology of the immune system. Immunity of the oral cavity and mechanisms of its damage.	<b>LW, LC</b>
	<b>Topic 2.6.</b> Allergy. Features of allergic reactions in dentistry.	<b>LW, LC</b>
	<b>Topic 2.7.</b> Pathophysiology of tumor growth. Typical pathological processes of the salivary glands; tumor and non-tumor diseases of the salivary glands (sialadenitis, etc.).	<b>LW</b>
<b>Module 3</b> Non-specific metabolic disorders	<b>Topic 3.1.</b> Hypoxia. Pathogenesis of periodontal diseases against the background of oxygen deficiency in tissues.	<b>LW, LC</b>
	<b>Topic 3.2.</b> Pathology of body thermoregulation. Fever.	<b>LW</b>
	<b>Topic 3.3.</b> Pathophysiology of carbohydrate metabolism. Diabetes. Manifestations of diabetes in the oral cavity.	<b>LW, LC</b>
	<b>Topic 3.4.</b> Pathology of water-salt metabolism. Edema. Pathophysiology of the acid-base state of the body. Acid-base disorders in the oral cavity.	<b>LW</b>
	<b>Topic 3.5.</b> Typical pathological processes in the maxillofacial region.	<b>LC</b>
	<b>Topic 3.6.</b> Pathophysiology of fat, protein and purine metabolism. Protein metabolism disorders in the pathogenesis of caries.	<b>LW</b>
<b>Module 4</b> Extreme states	<b>Topic 4.1.</b> Pathophysiology of extreme states.	<b>LC</b>
	<b>Topic 4.2.</b> Pathophysiology of pain. Odontogenic pain. Changes in the maxillofacial apparatus in neuralgia and neuritis of the facial and trigeminal nerves. Paresis, paralysis, trismus. Stress. Shock. Collapse. Coma.	<b>LW</b>

	Dying and revival of the body. Clinical and biological death. principles of resuscitation.	
	<b>Topic 4.3.</b> Pain and dental stress. Pathogenesis of myofascial pain in the maxillary fossa.	<b>LC</b>
<b>Module 5</b> Pathophysiology of the hematopoietic system	<b>Topic 5.1.</b> Anemias. Hemoblobonosis. Hemoglobinopathies.	<b>LW</b>
	<b>Topic 5.2.</b> Leukocytosis. Leukopenia. Leukemias. Changes in the oral mucosa in diseases of the hematopoietic system.	<b>LW</b>
	<b>Tema 5.3.</b> Clinical tasks in the pathophysiology of the hematopoietic system.	<b>LW</b>
	<b>Topic 5.4.</b> Hemorrhagic diathesis. Dental manifestations and their pathogenesis.	<b>LC</b>
<b>Module 6</b> Pathophysiology of the cardiovascular and respiratory systems.	<b>Topic 6.1.</b> Arrhythmias.	<b>LW</b>
	<b>Topic 6.2.</b> Coronary heart disease. Coronarogenic and noncoronarogenic necrosis of the myocardium. Complications of myocardial infarction.	<b>LW</b>
	<b>Topic 6.3.</b> Acute coronary syndrome.	<b>LC</b>
	<b>Topic 6.4.</b> Heart defects. Cardiomyopathies. Myocarditis. Endocarditis. Pericarditis.	<b>LW</b>
	<b>Topic 6.5.</b> Heart failure. Pathophysiology of respiration.	<b>LW</b>
	<b>Topic 6.6.</b> Pathophysiology of bronchial obstruction syndromes.	<b>LC</b>
	<b>Topic 6.7.</b> Pathophysiology of vascular tonus.	<b>LW</b>
	<b>Topic 6.8.</b> Pathophysiology of the vascular wall. Atherosclerosis.	<b>LW</b>
<b>Module 7</b> Pathophysiology of the gastrointestinal tract	<b>Topic 7.1.</b> Pathophysiology of the chewing apparatus. Pathogenesis of diseases of the temporomandibular joint.	<b>LC</b>
	<b>Topic 7.2.</b> Non-specific dysfunctions of the gastrointestinal tract.	<b>LC</b>
	<b>Topic 7.3.</b> Acute and chronic gastritis. Peptic ulcer. Diseases of the operated GIT.	<b>LW</b>
	<b>Topic 7.4.</b> Pathophysiology of the liver and bile ducts. Jaundice. Hepatic failure. Pathophysiology of cholecystitis. Pathophysiology of the pancreas. Intestinal obstruction.	<b>LW</b>

<b>Module 8</b> Pathophysiology of the excretory system	<b>Topic 8.1.</b> Non-specific disorders of the excretory function of the kidneys.	<b>LC</b>
	<b>Topic 8.2.</b> Nephrotic syndrome. Nephritic syndrome. Acute and chronic diffuse glomerulonephritis. Pyelonephritis. Urolithiasis. Acute and chronic renal failure. Uremia. Renal coma.	<b>LW</b>
<b>Module 9</b> Pathophysiology of the endocrine system	<b>Topic 9.1.</b> General mechanisms of endocrine disorders. Pathophysiology of the hypothalamic, pituitary and adrenal systems.	<b>LW</b>
	<b>Topic 9.2.</b> Pathophysiology of thyroid, parathyroid glands, thymus, epiphysis and gonads.	<b>LW</b>
	<b>Topic 9.3.</b> Dental manifestations of endocrine pathology.	<b>LC</b>
<b>Module 10</b> Pathophysiology of the nervous system and higher nervous activity	<b>Topic 10.1.</b> Pathophysiology of functional neuroses. Pathological reflexes. Pathophysiology of drug addiction. Pathophysiology of alcoholism.	<b>LW</b>
	<b>Topic 10.2.</b> Pathophysiology of CNS and neuroses.	<b>LC</b>

\* - to be filled in only for **full** -time training: *LC* - lectures; *LW* - lab work; *S* - seminars.

## 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)
Lab work	Classroom for seminars, workshops, lab works, group and individual consultations, evaluation and assessment, equipped with a set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector, laptop, projection screen, stable wireless Internet connection. (rooms: 214, 215)	Metabolic chamber for rats, AE0906 (3 pcs.) Metabolic chamber for rats (2 pcs.) Operating light ALFA-734 Cage for keeping rodents (6 pcs.) Exhaust module Lab-1500 ShV Projector Epson EB-X03 LCD 2700Lm (1024x768) Notebook Dell Vostro 5581 Electric screen Projecta Elpro Electrol 200x200cm Matte White S
Seminar	Classroom for seminars, workshops, lab	ViewSonic PA503S Projector +

<b>Type of academic activities</b>	<b>Classroom equipment</b>	<b>Specialised educational / laboratory equipment, software, and materials for course study (if necessary)</b>
	works, group and individual consultations, evaluation and assessment, equipped with a set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector, laptop, projection screen, stable wireless Internet connection. (room: 212)	Digis DSM-2 Ceiling Mount Adjustable Ceiling Mount Notebook Dell Vostro 5581 LMC-100109, Lumien Master Control Screen LMC-100109 183x244 cm Matte White FiberGlass, Motorized Software: Microsoft products (OS, office suite, including MS Office/Office 365, Teams, Skype)
Computer Lab	Computer Lab for seminars, workshops, group and individual consultations, evaluation and assessment, equipped with a set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector, laptop, 9 sets of computer + system unit, projection screen, stable wireless Internet connection. (room: 213)	ViewSonic PA503S Projector + Digis DSM-2 Ceiling Mount Adjustable Ceiling Mount Computer MATX Super Power QM 104A11500WP4 USB/AV, Internet access. Screen with electric wire Draper198X264 Software: Microsoft products (OS, office suite, including MS Office/Office 365, Teams, Skype) Complete SPARK system unit (10 pcs.) Monitor 17" TFT Proview (10 pcs.)
Self-studies	Classroom for self-studies (can be used for seminars, workshops, lab works, group and individual consultations,), equipped with a set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector, laptop, projection screen, stable wireless Internet connection. (room: 212)	ViewSonic PA503S Projector + Digis DSM-2 Ceiling Mount Adjustable Ceiling Mount Computer MATX Super Power QM 104A11500WP4 USB/AV, Internet access. Screen with electric wire Draper198X264 Software: Microsoft products (OS, office suite, including MS Office/Office 365, Teams, Skype) Complete SPARK system unit (10 pcs.) Monitor 17" TFT Proview (10 pcs.)



## 7. RESOURCES RECOMMENDED FOR COURSE STUDY

### *Main readings:*

- 1. Robbins&Cotran** Pathologic Basis of Disease/editors V. Kumar, A.K. Abbas, J.C. Aster, J.R. Turner.- 10ed. – Elsevier, 2021. – 1379p.: - ISBN 978-0-323-53113-9: 12184.04.
- 2. Mohan Harsh.** Textbook of pathology. - New Delhi : Jaypee Brothers Medical Publishers Ltd., 2010. - 6 th ed. - 933 p.: il.
- 3. Mohan Harsh.** Textbook of pathology. - New Delhi : Jaypee Brothers Medical Publishers Ltd., 2015. - 7 th ed. - 954 p.: il.
- 4. Mohan Harsh.** Textbook of pathology. - New Delhi : Jaypee Brothers Medical Publishers Ltd., 2015. - 7 th ed. - 665 p.: il. Supplement

### *Additional readings:*

Litvitskiy P.F., Pathophysiology : lectures, tests, tasks / Litvitskiy P.F., Pirozhkov S.V., Tezikov E.B. - M. : GEOTAR-Media, 2016. - 432 p. - ISBN 978-5-9704-3600-4.

<http://www.studmedlib.ru/book/ISBN9785970436004.html>

(In English)

Electronic source:

[http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=475793&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=475793&idb=0)

The specified educational editions are available in the Scientific Library of Peoples' Friendship University of Russia and at V.A. Frolov Department of general pathology and pathological physiology.

### *Internet-(based) sources*

1. Electronic libraries with access for RUDN students
  - Electronic Library System (ELS) of the RUDN University <http://lib.rudn.ru/MegaPro/Web>
  - ELS "University Library Online" <http://www.biblioclub.ru>
  - ELS Jurait <http://www.biblio-online.ru>
  - ELS «Student consultant» [www.studentlibrary.ru](http://www.studentlibrary.ru)
  - ELS «Lan» <http://e.lanbook.com/>
2. Databases and search engines:
  - electronic fund of legal and regulatory technical documentation <http://docs.cntd.ru/>
  - Yandex search engines <https://www.yandex.ru/>
  - Google search engine <https://www.google.com/>
  - reference database SCOPUS <http://www.elsevierscience.ru/products/scopus/>
  - WHO documentation center <http://whodc.mednet.ru/>
  - Springer <https://rd.springer.com/>

1. The set of lectures on the course«Pathophysiology – Pathophysiology of Head and Neck»
2. The laboratory workshop (if any).on the course «Pathophysiology – Pathophysiology of Head and Neck»

3. The guidelines for writing a course paper / project (if any) on the course «Pathophysiology – Pathophysiology of Head and Neck»

4. ....

\* 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 (GC-1; GPC-9; PC-1. ) 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:**

Assistant professor of  
V.A. Department  
of General Pathology and  
Pathological Physiology

position, department

signature

V.A. Goryachev

name and surname

### **HEAD OF EDUCATIONAL DEPARTMENT:**

V.A. Department  
of General Pathology and  
Pathological Physiology

name of department

signature

M.L. Blagonravov

name and surname

### **HEAD OF HIGHER EDUCATION PROGRAMME:**

First Deputy Director of Medical  
Institute

position, department

signature

S.N Razumova

name and surname