Federal State Autonomous Educational Institution of Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
RUDN University

Institute of Medicine

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

COURSE SYLLABUS

Histology. Embryology, Cytology, Oral Histology

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 of higher education:

Dentistry

higher education programme profile/specialisation title

2022-2023

1. COURSE GOAL(s)

The goal of the course "Histology, embryology, cytology – Oral Histology" is to equip students with knowledge of microscopic functional morphology and the development of human cells, tissues and organs. Special emphasis is laid on the development and structure of the oral cavity organs, for providing an appropriate part of the theoretical foundation for the training and professional activity of a dentist.

2. REQUIREMENTS FOR LEARNING OUTCOMES

Mastering the course "**Histology, embryology, cytology – Oral Histology**" is aimed at the formation at the development of the following competences /competences in part: **GPC-9.**

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

Competence code	**Competence descriptor**	**Competence formation indicators** (within this course)
GPC-9	Able to assess morphofunctional, physiological states and pathological processes in the human body to solve professional problems	GPC-9.1 Owns the algorithm of clinical, laboratory and functional diagnostics in solving professional tasks
		GPC-9.2 Evaluates the results of clinical, laboratory and functional diagnostics in solving professional tasks
		GPC-9.3 Determines morphofunctional, physiological states and pathological processes of the human body

3.COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The course "**Histology, embryology, cytology – Oral Histology**" 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

Competence code	**Competence descriptor**	**Previous courses/modules***	**Subsequent courses/modules***
GPC-9	Able to assess morphofunctional, physiological conditions and pathological processes in the human	Anatomy Biology	General pathology and pathologic physiology; Pathological anatomy of the head and neck;

Competence code	Competence descriptor	Previous courses/modules*	Subsequent courses/modules*
	body to solve professional problems		General and clinical pharmacology; Forensic medicine; Gerontostomatology and diseases of the oral mucosa; Cariesology and disease of hard tissues of the oral cavity; Periodontology

4. THE DISCIPLINE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the course "**Histology, embryology, cytology"** is 6 credits (216 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	
			2	3
Classroom learnings , ac.h.		**140**	**72**	**68**
Including:				
Lectures (LC)		**35**	**18**	**17**
Lab work (LW)		**105**	**54**	**51**
Seminars (workshops/tutorials) (S)		-	-	-
Self-studies, academic hours		*40*	*27*	*13*
Evaluation and assessment (exam or pass/fail grading)		*36*	*9*	*27*
Total workload of the discipline	ac.h.	**216**	**108**	**108**
	credits	**6**	**3**	**3**

5. COURSE CONTENTS

Table 5.1. Course contents and academic activities types

Course module title	Course module contents (topics)	Academic activities types
Module 1 Introduction to the discipline. Research methods	**1.1.** Methods of histological, cytological and embryological studies	LC, LW
Module 2 Cytology.	**2.1.** Cell structure	LC, LW
	2.2. Organelles and inclusions	LC, LW

Course module title	Course module contents (topics)	Academic activities types
	2.3. Nucleus: structure, functions. Cell cycle	LC, LW
Module 3 Basic Histology.	**3.1.** The concept of tissues. Epithelia. Glands.	LC, LW
	3.2. The system of the internal environment tissues. Blood and lymph. Hematopoiesis.	LC, LW
	3.3. Connective tissues. Connective tissue proper. Connective tissues with special properties.	LC, LW
	3.4. Skeletal connective tissues. Cartilage. Bone tissues.	LC, LW
	3.5. Muscle tissues	LC, LW
	3.6. Nerve tissue	LC, LW
Module 4 Histology of organs and organ systems	**4.1.** Nerve System	LC, LW
	4.2. Sensory system(Organs of special senses)	LC, LW
	4.3. Circulatory system	LC, LW
	4.4. System of organs of hematopoiesis and immune defense	LC, LW
	4.5. Endocrine system	LC, LW
	4.6. Digestive system	LC, LW
	4.7. Respiratory system	LC, LW
	4.8. Skin and its derivatives	LC, LW
	4.9. Urinary system	LC, LW
	4.10. Reproductive system	LC, LW
Module 5 Oral Histology	**5.1.** Features of the structure of the anterior part of the digestive tube	LC, LW
	5.2. Tooth structure	LC, LW
	5.3. Tooth development (odontogenesis)	LC, LW
	5.4. Salivary glands	LC, LW
Module 6 Embryology.	**6.1.** Common embryology	LC, LW
	6.2. The basis of human embryology	LC, LW

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	Medical Biotechnologies Lab equipped with a set of specialized furniture and lab equipment; (classrooms 316, 318)	Laboratory CO2- incubators Shellab, laminar-flow cabinet series Biowizard , microscope “Leica Microsystem CMC», inverted microscope Leica DMi8, automatic cell counter TC20, laboratory microcentrifuge MiniSpin, abacterial box, flow cytometer, freezer compartment UF V 700, cellular analyzer xCELLigence, flatbed monochromator fluorimeter, cytofluorimeter cell sorter, the Lab of a full cycle of histological tissue processing..
Lab work	Classroom for lab work, individual consultations, self-studies equipped with a set of specialized furniture; whiteboard; light microscopes and a set of devices (classrooms . 221, 223, 224, 228, 332).	Microscopes “МИКМЕД-5”, technical equipment: multimedia projector BenQ Projector MX 525, projection screen, laptop ASUS X515JP-BQ029T, computer Lenovo V530S-071CB with stable Internet connection. Software: Microsoft Windows, MS Office / Office 365, MS Teams, Chrome (latest stable release), sets of histological preparations, microphotographs, a list of stands, tables, visual posters, etc
Self-studies	Classroom for self-studies of students (can be used for seminars and consultations), equipped with a set of specialized furniture, microscopes and computers with stable wireless Internet connection. (classrooms 223, 332).	Microscopes “МИКМЕД-5”, technical equipment: multimedia projector BenQ Projector MX 525, projection screen, laptop ASUS X515JP-BQ029T, computer Lenovo V530S-071CB with stable wireless Internet connection. Software: Microsoft Windows, MS Office / Office 365, MS Teams, Chrome (latest stable release), sets of histological preparations, microphotographs, a list of stands, tables, visual posters, etc

7. RESOURCES RECOMMENDED FOR COURSE STUDY

Main readings:

1. Kierszenbaum A. L. Histology and Cell Biology. An Introduction to Pathology / A.L. Kierszenbaum, L.L. Tres. - Fourth Edition ; - Philadelphia : Elsevier, 2016. - 734 p. : ill. - ISBN 978-0-323-31330-8 : 8893.12.
2. Kuznetsov S. L.. Histology, Cytology and Embriology : (a course of lectures) / S.L. Kuznetsov, T.V. Boronikhina, V.L. Goryachkina ; edited by Babchenko E.V. - 2nd edition ; - Moscow : Medical Informational Agency, 2019. - 240 p. - ISBN 978-5-907098-08-4 : 798.00.
3. Lowe James S.Stevens & Lowe Human Histology / J.S. Lowe, P.G. Anderson. - Fourth Edition ; Philadelphia : Elsevier, 2015. - 429 p. : il. - ISBN 978-0-723-43502-0 : 8070.94.
4. Botchey V.M., Savrova O.B., Eremina I.Z. Basic Cytology: the course of lectures / M. : PFUR, 2022. – 56 p. - ISBN 978-5-209-11049-1.
5. Savrova O.B. Basic Histology: the course of lectures / M. : PFUR, 2017. - 64 p. : il. - ISBN 978-5-209-08126-5.
6. Savrova O.B. Histology of Oral Cavity / O.B. Savrova. - M. : PFUR, 2016. - 73 c. : il. - ISBN 978-5-209-07295-9 : 56.42.
7. Savrova O.B., Eremina I.Z.,Botchey V.M. Histology: Organ Systems. - M. : PFUR, 2019. - 168 c. - ISBN 978-5-209-08576-8 : 76.75.

Additional readings:

Electronic full-text materials:

1. Savrova O. B., Eremina I.Z. Cytology. Embryology: the course of lectures[Electronic resource] / ; - M. : PFUR, 2016. - 76 p. : il. - ISBN 978-5-209-07391-8.
2. O.B.Savrova, V.M.Botchey, I.Z Eremina. Basic Cytology [Electronic resource] = Цитология: Course of lectures for students of English-media groups / M.: PFUR, 2019.
3. Savrova O.B., Botchey V.M., Eremina I.Z. Systemic histology: course of lectures for students of English-media groups. P. 1 / O.B. Savrova, V.M. Botchey, I.Z. Eremina. - M. : PFUR, 2018. - 81 p. : ил. - ISBN 978-5-209-08539-3. - ISBN 978-5-209-08540-9 (P. 1).
4. Savrova O.B., Botchey V.M., Eremina I.Z. Systemic histology: course of lectures for students of English-media groups. P. 2 / O.B. Savrova, V.M. Botchey, I.Z. Eremina. - Electronic text data. - M. : PFUR, 2018. - 80 p. : ил. - ISBN 978-5-209-08539-3. - ISBN 978-5-209-08812-7 (P. 2).

***Printed publications*:**

1. Nanci A. Ten Cate's Oral Histology. Development, Structure and Function (with interactive CD/ Mosby.
2. Ten Cate A.R. Oral Histology. Development, Structure and Function /St. Louis: Mosby
3. Bath-Balogh M. Illustrated Dental Embryology, Histology, and Anatomy/Elseveier Sauners
4. Avery J.K. and D.J. Chiego. Essentials of Oral Histology and Embryology: A Clinical Approach, 3rd Edition. C.V. Mosby.
5. Textbook of oral and axillofacial anatomy, histology and embryology/ Edited by S.R.Prubhu/ Oxfrod University Press
6. Arthur R. Hand and Marion E.Frank Fundamentals of Oral Histology and Physiology/ Wiley Blackwell
7. Maji Jose Manual of Oral Histology and Oral Pathology. Colour Atlas and Text

8. Orban's Oral Histology and Embryology / Edited by G.S.Kumar /12-th,13-th, 14-th Ed./Elsevier. Churchill Livingstone
9. Berkovitz B.K.B., Holland G.R., Moxham B.J. Oral anatomy, Histology and Embryology / 3-rd Edition, 2009 - Mosby
10. Boehm, Tobias. "Anatomy and Histology of Oral Tissues." Western University of Health Sciences.
11. Chandra S. & all Textbook of Dental and Oral Histology with Embryology
12. Histology, Cytology, Embryology: manual to Laboratory Classes. P. 1 / V.M. Botchey, O.B. Savrova, I.Z. Eremina, V.M. Grinberg; э - M. : PFUR, 2020. - 37 p. - ISBN 978-5-209-09801-0. - ISBN 978-5-209-09802-7 (ч. I).

Internet (based) sources

1. Electronic library network (ELN) of RUDN and third-party ELN, to which university students have access on the basis of concluded contracts:

- 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 systems:

- electronic fund of legal and regulatory and technical documentation http://docs.cntd.ru/
- search system Yandex https://www.yandex.ru/
- search system Google https://www.google.ru/
- abstract database SCOPUS http://www.elsevierscience.ru/products/scopus/

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

1. The set of lectures on the course "Histology, Embryology, cytology, Oral Histology"

* 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 (GPC-9) 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:

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