



CD 8.5.1 DISCIPLINE CURRICULUM

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FACULTY OF STOMATOLOGY
STUDY PROGRAM 0911.1 STOMATOLOGY
DEPARTMENT OF HUMAN ANATOMY

APPROVED

at the meeting of the Commission for Quality Assurance and Evaluation of the Curriculum Faculty of Stomatology
Minutes No. 3 of 13.02.2013

Chairman, PhD, associate professor

Stepco Elena

(signature)

APPROVED

at the Council meeting of the Faculty of Stomatology
Minutes No. 6 of 20.02.2014

Dean of Faculty, PhD, professor

Ciobanu Sergiu

(signature)

APPROVED

at the meeting of the Chair of Human Anatomy
Minutes No. 10 of 31.01.2018
Head of Chair, PhD, professor

Catereniuc Ilia

(signature)

SYLLABUS

DISCIPLINE:

ANATOMY OF THE HEAD AND NECK

Integrated studies

Type of course: **Compulsory**

Chisinau, 2018



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I. INTRODUCTION

- **General presentation of the discipline: place and role of the discipline in the formation of the specific competences of the professional / specialty training program**

Education in the field of training *0911 Dentistry* has the mission to train highly qualified, multilaterally developed specialists able to ensure the oral health of the population and to prevent dental diseases among the population.

Qualitative training of the specialist in Dentistry interferes with the fundamental disciplines (*anatomy, histology, physiology, etc.*), meant to provide basic knowledge necessary for the acquisition of the disciplines.

Human Anatomy is an important component of preclinical education and it is one of the oldest fundamental sciences of medical education, which can also be defined as science of the material substrate of the life and health.

Having as the object of research the living human body, Anatomy is an important component of preclinical education that supplies the student with information on the structure of the human body in phylogenesis and ontogenesis, the morphological variability of its structures, development anomalies, age, gender and individual specific features.

Anatomy of the head and neck course studies the structure of the human body and its component parts at the macro- and mesoscopic levels.

This information is useful for studying subsequent biomedical courses and is intended not only to form a set of basic knowledge about morphology of the human body, but also to facilitate the creation of genuine notions of the body as a whole, in which the structure is influenced by function and vice versa, in close connection with the environment.

- **Mission of the curriculum (aim) in professional training**

Aim of the curriculum consists in supplying students with knowledge about the structure of the human body, the morpho-functional specific features of organs and organ systems in different periods of postnatal development, focusing on the cephalic extremity of the body and their use for basic, clinical and profile disciplines aimed to prevent various diseases, to contribute in establishment of proper diagnosis, and treatment.

One of the main objectives of the course is to study the anatomy of the living man and its educational role in professional training.

- ✓ **Languages of the course:** Romanian, Russian, English.
- **Beneficiaries:** First year students, Faculty of Stomatology, specialty *DENTISTRY*.



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II. MANAGEMENT OF THE DISCIPLINE

Code of the discipline	F.02.O.016 – Anatomy of the head and neck		
Name of the discipline	Human anatomy		
Person(s) in charge of the discipline	PhD, professor Ilia Catereniuc		
Year	I	Semester	II
Total number of hours – 90			
Lectures	17	Practical/laboratory hours	17
Seminars	34	Self-training	22
Form of assessment	E	Number of credits	3



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III. TRAINING AIMS WITHIN THE DISCIPLINE

At the end of the course the student will be able:

✓ *at the level of knowledge and understanding to:*

- know the traditional and modern methods of morphological examination, including anatomy of the morphological structures in the neck and head regions;
- acquire skills necessary for the practice of a dental specialist, oriented towards knowledge and understanding of the structure of the anatomical formations located in the cephalic extremity and of the physiological and pathological mechanisms of functioning of the organs and organ systems of the region;
- reproduce information on structural specific features of the cervico-oro-facial regions at the macroscopic and mesoscopic levels, their function and appearance in a living person (somatoscopic, radiological, sonographic, magnetic resonance, endoscopic, etc.);
- continue familiarization with the International Anatomical Terminology developed by FICAT (Federative International Committee on Anatomical Terminology, 1998) and anatomico-clinical terminology used in dentistry.

✓ *at the application level to:*

- apply the theoretical knowledge in the practice of professional activity;
- identify and demonstrate the structural aspects of cervico-facial anatomical formations;
- demonstrate the location and projection of blood vessels, nerves, etc. on the surface of the neck and face;
- identify the anatomical structures in the head and neck region on radiological images (radiograms, tomograms), sonographic, obtained by NMR, etc. .;
- establish bony and muscular landmarks, joints, blood vessels and nerves of the cervico-facial region of a living person;
- determine pulse of the arteries of the head, neck and extremities and indicate their points of compression for haemostasis;
- possess basic skills of dissection and preparation of anatomical samples for studies.

✓ *at the integration level to:*

- evaluate the place and role of human anatomy in the field of human anatomy to acquire basic medical, clinical and dental profiles;
- use information technologies to obtain, evaluate, store, produce, present and exchange information with colleagues in individual and group work;
- acquire learning abilities, that will contribute to the management of the professional activity.
- aware of the applicability of anatomical knowledge for work as a specialist in dentistry.



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IV. PROVISIONAL TERMS AND CONDITIONS

Anatomy is a fundamental science in medical education, studying the human body and its ontogenetic development, which is closely related to the environmental changes and daily activities of each person.

For the successful acquisition of the discipline, thorough knowledge of biology and anatomy is required, obtained in pre-university studies, as well as knowledge of the principles of medical terms, based on elementary knowledge of the Latin language.

The discipline of human anatomy is oriented towards the formation of an initial level of knowledge necessary for further study of physiology, pathophysiology, morphopathology, pharmacology, clinical pharmacology, etc., with which it integrates vertically.

Due to the application of methods used by physicians (palpation, percussion, radiological, endoscopic, computer tomography, ultrasound, etc.), anatomy becomes a science of living form, possessing a considerable vocabulary of over 5000 terms on which all the other sciences in medical education are based.

Modern medicine does not require from nowadays anatomy an abstract of human body structure and its shape, but real data about the structure of an individual - *individual anatomical variability*.

Therefore, Anatomy is the science of living forms, of changing and reorganization of the human body. It includes systematization and integration of knowledge about the mutual connection and influence of somatic and visceral systems, about the influence of various external environmental factors on musculoskeletal and visceral activity and on the nervous system.

For a good comprehension of the discipline, the first year student needs the following skills:

- good level of the language of instruction;
- confirmed competences in the sciences studied at lyceum (*biology, chemistry, physics*);
- knowledge of the principles of medical terms formation, based on elementary knowledge of the Latin language;
- digital competences (*use of the Internet, document processing, electronic tables and presentations, use of graphics programs*);
- ability to communicate and to work in a team;
- qualities - tolerance, compassion, creativity, initiative, autonomy.



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V. THEMES AND ESTIMATE ALLOCATION OF HOURS

No	THEME	Number of hours		
		Lectures	Practical hours	Self-training
1.	<p><i>Functional anatomy of the skull.</i> <i>Ontogenesis, variants, development abnormalities.</i> <i>Morphological features of the skull bones, their dental landmarks.</i> <i>Age specific features and topography of the skull.</i> Skull – structural features and compartments. Occipital, frontal, parietal and sphenoidal bones. Temporal and ethmoidal bones. Bones of the viscerocranium. The skull as a whole, its dental landmarks. Examination on a living person.</p>	3	9	2
2.	<p><i>Joints of the skull bones (sutures, fontanel, synchondroses, etc.).</i> Temporomandibular joint, its biomechanics.</p>	1	3	1
3.	<p><i>Muscles, fasciae and topography of the head and neck. Clinical significance.</i> <i>Temporomandibular joint, its biomechanics.</i> Muscles of the head and neck, examination on a living person. Fasciae and topography of the head and neck.</p>	2	3	2
4.	TEST. ASSESSMENT.		2	
5.	<p><i>Functional anatomy of the oral cavity and cervical region organs. Functional anatomy of odonton (tooth as an organ).</i> Oral cavity, salivary glands, tongue, teeth, dental landmarks. Nasal cavity, paranasal sinuses, examination on a living person. Pharynx. Larynx. Examination on a living person.</p>	2	4	4
6.	<p><i>Functional anatomy of the cranial nerves. Functional anatomy of the sense organs.</i> Organ of vision. The II, III, IV, VI cranial nerves. Ear (external, middle, internal). The VIII cranial nerve. Trigeminal nerve – general characteristics, branches, areas of innervation. Conductive pathway, examination on a living person. Facial nerve – branches, areas of innervation. Conductive pathway, examination on a living person. Innervation of the glands of the head and neck regions. The IX and X cranial nerves, ganglia, branches, areas of innervation. Conductive pathways, examination on a living person. Olfactory and taste systems, examination on a living person. The XI and XII cranial nerves, examination on a living person. Connections of the cranial nerves, applicative significance. Cervical plexus.</p>	4	15	6
7.	TEST. ASSESSMENT.		2	
8.	<p><i>Functional anatomy of vascular and lymphoid systems of the head and neck.</i> Aorta, its arch – topography, branches. Common carotid artery, branches, sinocarotid reflexogenic zone. External carotid artery, topography, branches, examination on a living person. Superficial and deep veins of the head and neck regions, examination on a living person. Internal jugular vein, intra- and extracranial tributaries, diploid veins, emissary veins. Venous drainage of the brain. Internal carotid artery, examination on a living person. Subclavian artery – topography, branches. Arterial circle of the brain, variants and abnormalities. Head and neck lymph nodes, examination on a living person. Sympathetic trunk, its cervical part.</p>	2	8	5
9.	<p><i>Somatic and vegetative innervation of the muscles, joints and organs of the head and neck regions.</i> Anatomy of head and neck regions in applicative aspect.</p>	3	3	2
10.	ASSESSMENT		2	
Total		17	17/34	22
TOTAL		90		



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VI. REFERENCE OBJECTIVES AND CONTENT UNITS

Objectives	Content units
ANATOMY OF THE HEAD AND NECK	
<ul style="list-style-type: none">• define the notion of cephalic extremity• know:<ul style="list-style-type: none">✓ classification, structure and anatomic features of the bones, joints and muscles of the head and neck;✓ anatomical landmarks: of the bones, joints, muscles, blood vessels, lymphatics and nerves of the head and neck;✓ fasciae of the head and neck areas and their applicative importance;✓ alimentary (or digestive) and respiratory organs of the head and neck regions;✓ blood vessels and lymphatics of the head and neck, their projection.• demonstrate:<ul style="list-style-type: none">✓ abilities for analysis and systematization of knowledge;✓ bones, joints, muscles and blood vessels of the head and neck regions on cadavers, radiographs and living person;✓ anatomical formations on the theme on anatomical samples, molds, etc.• apply the criteria for differentiation of the anatomical formations on the cadaver and parts of the body, radiograms and on a living person by:<ul style="list-style-type: none">✓ identification of the cephalic extremity guidance lines;✓ identification of individual and regional specific features of the skull bones;✓ identification of the bones, joints, muscles, blood vessels and nerves of the head and neck regions on cadaver and living person;• integrate anatomical knowledge with the clinical disciplines and to apply it in practice by formulating the conclusions on the studied subject.	<p><i>Osteology and Arthrology.</i> Skull - structure, age and gender features. Bones of the neurocranium and viscerocranium. The skull as a whole. Joints of skull bones (sutures, fontanelles, synchondroses, etc.). Temporomandibular joint, its biomechanics.</p> <p><i>Myology.</i> Muscles of the head and neck. Fasciae and topography of the head and neck.</p> <p><i>Alimentary (Digestive) system:</i> Oral cavity, tongue, teeth and salivary glands, pharynx.</p> <p><i>Respiratory system:</i> External nose, nasal cavity with paranasal sinuses, larynx. Thyroid and parathyroid glands.</p> <p><i>Blood vessels and lymph nodes</i> of the head and neck: common, external and internal carotid arteries, subclavian artery - topography, branches; superficial and deep veins of the head and neck regions (internal jugular vein, intra- and extracranial tributaries, diploic veins, emissary veins); lymph nodes of the head and neck.</p> <p><i>Cervical plexus.</i> <i>Cranial nerves:</i> the II, III, IV, VI – their real and apparent origin, types of fibers, distribution areas. Organ of vision. Ear (external, middle, internal). The VIII cranial nerve. Trigeminal nerve – general characteristics, branches, areas of innervation. Facial nerve. Innervation of the glands of the head and neck regions. The IX and X cranial nerves, ganglia, branches, areas of innervation. Olfactory and gustatory organs. The XI and XII cranial nerves. Sympathetic trunk, its cervical part.</p>



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VII. PROFESSIONAL (SPECIFIC (SC) AND TRANSVERSAL (TC)) COMPETENCES AND STUDY OUTCOMES

✓ PROFESSIONAL COMPETENCES (specific) (SC)

- PC1. Knowledge of the structure, development and functioning of the head and neck organs;
- PC2. Identification of the anatomical formations of the head and neck region on cadaveric and on living person;
- PC3. Interpretation of radiographs, tomograms, magnetic resonance, sonographic examinations, etc. in the cephalic extremity;
- PC4. Applying the gained knowledge in human anatomy in dental practice;
- PC5. Solving the case based problems and formulation of conclusions;
- PC6. Performing various practical skills and procedures for carrying out professional activities specific to the specialty based on anatomical knowledge and other fundamental disciplines.

✓ TRANSVERSAL COMPETENCES (TC)

- TC1. Fitting in interdisciplinary projects, extracurricular activities;
- TC2. Performing activities and exercising the roles specific to the study of the discipline in a team; Promoting the spirit of initiative, dialogue, cooperation, positive attitude and respect for colleagues, empathy, altruism and continuous improvement of one's own activity;
- TC3. Developing different techniques of learning.

✓ STUDY OUTCOMES

Upon completion of the course the student will be able to:

- to have knowledge about structure, topography and anatomical features of the organs of cephalic extremity;
- to understand the principles of application and transfer of knowledge in medical practice;
- to assess the place and role of human anatomy in the preclinical preparation of the dental student;
- to be able to implement the gained knowledge in the research activity;
- to possess skills of analysis and synthesis of information and to be able to use the acquired knowledge and Information Technologies.



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VIII. STUDENT'S SELF-TRAINING

No	Expected product	Implementation strategies	Assessment criteria	Implementation terms
1.	Working with bibliographic sources and information resources	Work systematically in the library and media. Explore current electronic sources on the subject.	1. Logical thinking, flexibility. 2. The quality of systematization of the informational material obtained through its own activity.	During the semester
2.	Preparing the report	Analysis of relevant sources on the topic of the paper. Analysis, systematization and synthesis of information on the proposed topic. Compilation of the report in accordance with the requirements in force and presentation to the chair.	1. The quality of systematization and analysis of the informational material gained through its own activity. 2. Concordance of information with the proposed theme.	During the semester
3.	Work with anatomical samples and cadaveric material in the demonstration room (over program)	The student will benefit from the self-training program after hours. If required, he can contact the teacher on duty. Interaction conditions are created with both group colleagues and other students from all faculties. The student is able to work with anatomical preparations himself or in a team.	1. Workload. 2. Ability to demonstrate anatomical formations on samples. 3. Formulating conclusions on applied significance of the anatomical formations.	During the semester



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IX. METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-ASSESSMENT

- **Teaching and learning methods used**

- **Teaching methods used**

1. The Human Anatomy discipline is delivered according to the classical methodology with lectures and practical classes.
2. The theoretical course is delivered in the lectures held by the course holders. An interactive lecture is practiced.
3. Also, the following methods are used:
 - ✓ explanation;
 - ✓ demonstration;
 - ✓ heuristic conversation and debate;
 - ✓ group work;
 - ✓ individual work;
 - ✓ working with manual, scientific text and the anatomy atlas;
 - ✓ solving the case based problems;
 - ✓ interactive listening.

- **Applied teaching strategies/ technologies (specific to the discipline)**

In practical work, together with the teacher of the group, students study on the anatomical samples, use planes, molds, tables, fill-in the workbooks, do preparation of anatomical samples, that would be further demonstrated to the colleagues.

- **Methods of assessment (including the method of final mark calculation)**

Current: frontal/individual assessment of knowledge by:

- ✓ written assessments;
- ✓ demonstration of anatomical structures included in the curriculum of the discipline on the anatomical samples;
- ✓ solving the docimological tests in University Informational Management System (UIMS) *SIMU*;
- ✓ graphical representation of the schemes on certain subjects;
- ✓ solving the case based problems.

Final assessment - exam.

At *Anatomy of the head and neck* discipline 6 assessments and the assessment of practical skills are organized during the II semester of study as follows:

Assessment no. 1 –Skull. Joints and muscles of the head and neck (oral evaluation / practical skills + testing).

Assessment no. 2 – Viscera of cephalic extremity. Cranial nerves. Sense organs. Cervical plexus. (oral evaluation / practical skills + testing).

Assessment no. 3 – Vasculature and lymph drainage of the head and neck (oral evaluation / practical skills).

Assessment of practical skills.

Each test is graded separately with marks from 0 to 10.

The average per semester is formed of the sum of the points accumulated at semestrial assessments divided into 7 (2 marks for each assessment and 1 for the assessment of practical skills).



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Each assessment consists of evaluation of the knowledge gained in the practical work and the theoretical course on a particular study chapter and includes the demonstration and annotation of the anatomical samples, including the assessment of the practical skills.

Only students who have received the semester mark 5.0 and more and recovered all the absences of the practical work are admitted to Human anatomy exam.

The assessment of practical skills consists of demonstrating by the respondents of anatomical formations studied in the practical lessons. Practical skills assessment is carried out with examination cards that include 10 questions.

Demonstration or description by the respondents of anatomical samples begins immediately after he/she has chosen the test, without being given any time for preparation.

In order to reflect the answers to the control questions, the examiner receives a special card stating the number of points obtained for each answer as well as the total number of points.

Examination of *Anatomy of the head and neck* discipline consists of testing in the UIMS – SIMU.

The overall score is based on two components: **the half-yearly average score** with the coefficient 0.5 and the **SIMU test** with the coefficient of 0.5.

Assessment of knowledge is graded from 10 to 1.0 (with decimals).

Scale of mark rounding at different assessment stages

Intermediate marks scale (annual average, marks from the examination)	National Assessment System	ECTS Equivalent
1,00-3,00	2	F
3,01-4,99	4	FX
5,00	5	E
5,01-5,50	5,5	
5,51-6,0	6	
6,01-6,50	6,5	D
6,51-7,00	7	
7,01-7,50	7,5	C
7,51-8,00	8	
8,01-8,50	8,5	B
8,51-8,00	9	
9,01-9,50	9,5	A
9,51-10,0	10	

The average annual mark and the marks of all stages of final examination (computer test, oral) – are expressed in numbers according to the mark scale (according to the table), and the final mark obtained is expressed in number with two decimals, which is transferred to student's record-book.

Absence on examination without a reason is recorded as "absent" and is equivalent to 0 (zero). The student has the right to have two re-examinations.



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X. RECOMMENDED LITERATURE:

A. Compulsory:

1. PRIVES M., LYSENKOV N., BUSHKOVICH V. Human Anatomy, vol. I. /The weight-bearing or locomotor apparatus. The science of the viscera. / Translated from Russian by Ludmila Aksenova. 1985. Mir Publishers, Moscow, 1989.
2. PRIVES M., LYSENKOV N., BUSHKOVICH V. Human Anatomy, vol. II. /The science of the vessels. The science of the nervous system. The science of the sense organs. / Translated from Russian by Ludmila Aksenova. 1985. Mir Publishers, Moscow, 1989.
3. GLOBAL L. Human Anatomy. Angiology, Peripheral Nervous System and Sense Organs. Chişinău, 2012.
4. НАЦИНА Т. Guide in anatomy: Locomotor apparatus, Chişinău, 2013.
5. SINELNICOV RD., SINELNICOV IA. R. Atlas of human anatomy, v. I, II, III, IV, M. 1990.
6. CATERENIUC I., LUPASCU T., BABUCI A. et al. Culegere de scheme la anatomia omului / Сборник схем по анатомии человека / Collection of schemes for human anatomy. Chişinău, 2012, 2014.
7. LUPAŞCU T., CATERENIUC I., GLOBAL L. Lucrări practice la Anatomia Omului / *Notebook for Practical work at Human Anatomy* / Практические занятия по анатомии человека (Ghid pentru autoinstruire / *Guide for self-studying* / Пособие по самоподготовке). Ed. a VIII-a trilingvă (revăzută și completată). III. Sistemele cardiovascular, limfatic, nervos periferic și organele senzoriale. III. *The cardiovascular, lymphoid and nervous systems, and sense organs. III. Сердечно-сосудистая, лимфатическая, периферическая нервная системы и органы чувств.* Chişinău, 2017.
8. LUPAŞCU T., CATERENIUC I., GLOBAL L., BATÂR D., BABUCI A., BENDELIC A. Lucrări practice la Anatomia Omului / *Notebook for Practical work at Human Anatomy* / Практические занятия по анатомии человека (Ghid pentru autoinstruire / *Guide for self-studying* / Пособие по самоподготовке). Ed. a IX-a trilingvă (revăzută și completată). II. Sistemul Nervos Central. Sistemele cardiovascular, limfatic, nervos periferic și organele senzoriale. / II. *Central Nervous System. The cardiovascular, lymphoid and nervous system,s and sense organs.* / II. Центральная нервная система. Сердечно-сосудистая, лимфатическая, периферическая нервная системы и органы чувств. Chişinău, 2018.

B. Additional:

1. KEITH L. MOORE, ARTUR F. DALLEY, ANNE M.R. AGUR. Clinically Oriented Anatomy, 6-th ed., 2007.
2. DRAKE R. L., VOGL W., MITCHELL A. W. M. et al. Gray`s Atlas of Anatomy. Elsevier, 2008.
3. DRAKE R. L., VOGL W., MITCHELL A. W. M. Gray`s Anatomy for students. Philadelphia... Toronto, 2005.
4. GRAY`S Anatomy, 39th ed. Edinburgh... Toronto, 2005 / 40th ed. Edinburgh... Elsevier Limited, 2008.
5. KAHLE W., FROTSCHER M. Color Atlas of Human Anatomy, vol. III, Nervous System and Sensory Organs. Stuttgart-New York, 2003.
6. LEONHARDT H. Color Atlas of Human Anatomy. Vol. I-III. Stuttgart-New York, 2003.
7. MOORE K. L., DALLEY A. F. Clinical oriented Anatomy. Philadelphia... Tokyo, 2006.
8. NETTER FRANK H. Atlas of Human Anatomy. 4-th Edition, Elsevier, 2006.