

**TARAS SHEVCHENKO NATIONAL UNIVERSITY OF KYIV**  
**Educational and Scientific Centre “Institute of Biology and Medicine”**

**STRUCTURE OF EDUCATIONAL DISCIPLINES**  
**Educational program “Medicine”**  
**Year of study First**

**MEDICAL INFORMATICS**

Topic	Number of hours					
	total	including				
		lectures	practical classes	lab work	individual tasks	self studies
1	2	3	4	5	6	7
<b>Module 1. <i>Fundamentals of Computer Information Technologies in the Health Care System.</i></b>						
<b>Topic 1.</b> Medical informatics - history, current state, prospects and directions of its further development.	17	2	4	-	-	11
<b>Topic 2.</b> Computer networks in medicine. Fundamentals of eHealth and Telemedicine.	10	2	4	-	-	4
<b>Topic 3.</b> Use of spreadsheets in the field of medicine. Creation and editing of a structured electronic medical record.	14	-	8	-	-	6
<b>Topic 4.</b> Computer data: data types, data processing. Encoding and classification of medical data.	10	-	6	-	-	4
<b>Module 2. <i>Analysis of biomedical data using computer technologies.</i></b>						
<b>Topic 5.</b> Medical information systems and databases.	12	2	4	-	-	6
<b>Topic 6.</b> Computer data: processing and managing data using a database.	10	-	4	-	-	6
<b>Topic 7.</b> Formalization and algorithmization of medical problems.	12	-	6	-	-	6
<b>Topic 8.</b> Processing and analysis of medical images.	20	-	8	-	-	12
<b>Total number of hours</b>	<b>105</b>	<b>6</b>	<b>44</b>			<b>55</b>

## «FOREIGN LANGUAGE(UKRAINIAN) (FOR PROFESSIONAL PURPOSES)»

№	Topic name	Hour amount		
		Lecture	Practical classes	Self studies
<b>Semantic module 1</b>				
1	Notification of the presence of a person or object, a question and a message about the address and personal data, a message about who and what did before. Words that refer to household items, names of parts of the city, names of pets. Past tense, construction <i>У мене є хто/що.</i>	-	8	14
2	Messages and questions about your place of residence, stay, location. Characteristics of persons and objects. The names of the rooms in the apartment, the names of the furniture. Prepositional case of nouns, prepositions <i>у/в, на.</i>	-	8	14
3	Description of the house, apartment. Questions <i>Котра година? О котрій годині?</i> and the answers to them. Ordinal numerals, names of house parts. Prepositional case of adjectives and ordinal numerals (singular and plural), prepositions <i>у/в, на</i> , complex sentence with a connecting word <i>який.</i>	-	8	14
4	Questions and plans for the future. Questions and reports about the date of birth. The names of months and seasons, cardinal numerals 100 - 1 000 000 000, adverbs <i>взимку, навесні, влітку, восени.</i> The future time of imperfect verb, adverbs of time, a complex sentence with conjunctions <i>бо, тому.</i>	-	8	14
5	Expresses with point of view. Questions about the opinion of another person about something. Detection of the object of thought and speech. Question about who and what another person likes to do. Adverbs of time, names of physical actions, names of colors. Accusative of nouns, adjectives and possessive pronouns, accusative case with a preposition in ( <i>у/в</i> ) and prepositional case with a preposition on ( <i>на</i> ).	-	8	14
6	Questions and conversation about the weather, about life. Message about walking or driving on transport. Qualitative adverbs and adverbs of the mode of action, verbs of motion without prefixes.	-	7	14

	Accusative case with the prefix <i>npo</i> , formation of qualitative adverbs, present and past tense of verbs of motion.			
	Control test		1	
<b>Semantic module 2</b>				
7	Message about the presence or absence of a person or object. Question and message about measure and amount of substance. Message about the place of location of object. Message about the exact date of the event. Names of units of weight, names of food containers. Genitive case of nouns, adjectives and possessive pronouns (singular and plural). Negative constructions. Genitive case with prepositions of the place.	-	8	14
8	Message about the number of persons and objects. An order in a restaurant. Message about the origin of the object. Phone call to the service center. Questions and conversation about skills. Names of dishes, names of computer equipment and its parts, phase verbs. Genitive case of nouns, adjectives in plural, genitive case with prepositions <i>з, без, до</i> .	-	8	14
9	Story and questions about who did what and who have done what. Plans for the future. The duration of the action and the time of the result. Names of procedural and effective actions. Perfect and imperfect verbs, ways of formation of perfect verbs. The future time of perfect verbs. Time constructions.	-	9	14
10	Questions and conversation about human activities and hobbies. Characteristics of the object. Detailed order at the restaurant. Names of professions, hobbies, names of dishes and drinks. Instrumental case of nouns, adjectives, and pronouns in singular and plural, an instrumental case with a preposition <i>з</i> .	-	9	14
11	Message about the age of the person, the addressee of the action. Message about what and who necessary to do. Message about what and who likes. Names of holidays, modal verbs. Dative case of nouns, adjectives and pronouns in singular and plural, necessity constructions.	-	9	14
12	The question about well-being and the answer to it. Conversation about health. Talk with the patient in the hospital. Verbs and adverbs calling physical state. The names of diseases. Medical card of the patient.	-	8	16
	Control test		1	
	<b>ALL</b>	-	<b>100</b>	<b>170</b>

## BIOLOGICAL AND BIOORGANIC CHEMISTRY

Topic and content module names	Number of hours					
	Total	Including				
		lectures	practical classes	lab work	individual tasks	self studies
1	2	3	4	5	6	7
<b>1<sup>ST</sup> YEAR</b>						
<b>MODULE1. Biologically important bioorganic substance classes. Biopolymers and their structural components</b>						
<b>Content module 1. Theoretical basics of bioorganic substance composition and reactional ability. Carbonic acids and their functional derivatives. Lipids.</b>						
Topic 1. Bioorganic substance classification, nomenclature and isomerization. Chemical bond nature. Bioorganic substance reaction ability.	9	-	3	-	-	6
Topic 2. Carbonic acid and hetero-functional substance (hydroxy-, keto- and phenolic acids) structure, features and biological importance	12	1	3	-	-	8
Topic 3. Higher fat acids. Saponific and non-saponific lipids. Phospholipids.	8	1	3	-	-	4
<b>Content module 1 final score</b>	29	2	9	-	-	18
<b>Content module 2. <math>\alpha</math>-amino acids, peptides, proteins.</b>						
Topic 4. Protein and peptide amino acid content. $\alpha$ -amino acid deamination, decarboxylation, transamination. Color reactions.	8	1	3	-	-	4
Topic 5. Protein structure. Protein physical and chemical features. Protein solubility, sedimentation, dialysis, electrophoresis. Denaturation.	8	1	3	-	-	4
<b>Control test №1.</b>						
<b>Content module 2 final score</b>	16	2	6	-	-	8
<b>Content module 3. Carbohydrates.</b>						
Topic 6. Carbohydrates. Monosaccharides: structure, chemical properties and biological value.	9	2	3	-	-	4

Topic 7. Structure, chemical properties and biological value of di- and polysaccharides.	9	2	3	-	-	4
<b>Content module 3 final score</b>	18	4	6	-	-	8
<b>Content module 4. Biologically active heterocycles. Nucleosides, nucleotides, nucleic acids.</b>						
Topic 8. Biologically important heterocyclic substance classification, structure and value.	12	1	3	-	-	8
Topic 9. Structure and biochemical functions of nucleosides, nucleotides and nucleic acids.	8	1	3	-	-	4
<b>Content module 4 final score</b>	20	2	6	-	-	12
<b>CONTROL TEST Module №1.</b>	7	-	3	-	-	4
<i>All 1<sup>st</sup> year hours:</i>	<b>90</b>	<b>10</b>	<b>30</b>			<b>50</b>

## LIFE SAFETY; THE BASIS OF BIOETHICS AND BIOSAFETY

Name of modules and themes	Number of hours					
	Total	including				
		lectures	practical classes	lab work	individual tasks	self studies
1	2	3	4	5	6	7
<b>Content module 1. Safety of human life in modern conditions.</b>						
<b>Theme 1.</b> Theoretical basis of life safety.	7	2	2	-	-	3
<b>Theme 2.</b> Man in the system "Human- foreign environment". The meaning of the external environment in the system "Human-foreign environment"	6	-	2	-	-	4
<b>Theme 3.</b> Legal and organizational questions of life safety and protection of labor of medical workers. Professional disadvantages in the performance of professional responsibilities of medical workers.	5	-	2	-	-	3
<b>Theme 4.</b> Providing the safety of human life	7	2	2	-	-	3

<b>Theme 5.</b> Natural hazards, the nature of their manifestations and actions on people and objects of the economy. Protecting the population from harmful and dangerous factors.	5	2	-	-	-	3
<b>Theme 6.</b> Man-made hazards and consequences of their actions. Typology of accidents on potentially dangerous objects. Protecting the population from harmful and dangerous factors.	5	2	-	-	-	3
<b>Theme 7.</b> Socio-political dangers, their types and features. Social and psychological risk factors. Algorithm of protective behavioral reactions.	5	2	-	-	-	3
<b>Theme 8.</b> Safety of food as the component of safe human life.	5		2	-	-	3
<b>Total content module 1.</b>	45	10	10	-	-	25
<b>Content module 2. Fundamentals of bioethics and biosafety.</b>						
<b>Theme 1.</b> Bioethics: subject, purpose and tasks in the health system. Directions and methods of bioethics. History of professional medical ethics, neo-ethics. Bioethics and the formation of a national health care system in Ukraine.	7	2	2	-	-	3
<b>Theme 2.</b> Human rights as a source of bioethical principles and behavioral criteria. Cost of living and health of a person. International documents on bioethics and human rights. Health Determination by World Health Organization(WHO). A healthy lifestyle as a condition of its duration, physical and spiritual development.	5	2	-	-	-	3

<b>Theme 3.</b> Bioethics of medical-biological experiments and clinical researches. Contemporary concept of evidence-based medicine. Ethical assessment of biosafety and risks of biomedical technologies. Bioethical committees, history of creation, methods of organization, models, rights and responsibilities, prospects of activity.	6	2	-	-	-	4
<b>Theme 4.</b> Ethical, moral, deontological and legal dimensions in different spheres of their application.	5	2	-	-	-	3
<b>Theme 5.</b> Bioethical bases of professional activity of the doctor. Relationships between medical staff, the patient and his family in the context of transcultural bioethics. The bioethical principle of equity in the distribution of health resources. Bioethical and legal evaluation of medical errors and iatrogenesis.	7	2	2	-	-	3
<b>Theme 6.</b> Bioethical and legal problems of human reproduction, genetic technologies, transplantation and blood transfusion.	5		2	-	-	3
<b>Theme 7.</b> Bioethical and legal problems of HIV infection and other socially dangerous infections, medical psychology and psychiatry.	5		2	-	-	3
<b>Theme 8.</b> Bioethical problems of pain, suffering, rehabilitation and euthanasia. Bioethics of the final phase of life. Bioethical problems of palliative and rehabilitation medicine.	5		2	-	-	3
<b>Total content module 2</b>	45	10	10			25
<b>Total hours</b>	90	20	20			50

## MEDICAL CHEMISTRY

Titles of content modules and topics	Number of hours					
	total	including				
		lectures	practical classes	lab work	individual tasks	self studies
1	2	3	4	5	6	7
<b>Module 1. Acid-base equilibriums and complex formation in biological liquids</b>						
<b>Content module 1. Chemistry of biogenic elements. Complex formation in biological liquids</b>						
<i>Topic 1.</i> Biogenic s-elements, p-elements and d-elements; biological role, application in medicine.	7	1	3	–	–	3
<i>Topic 2.</i> Complex formation in biological systems.	7	1	3	–	–	3
<b>Content module 2. Acid-base equilibriums in biological liquids</b>						
<i>Topic 3.</i> The values that characterize a quantitative composition of solutions. Preparation of solutions.	7	–	3	–	–	4
<i>Topic 4.</i> Acid-base equilibrium in the organism. Hydrogen ion exponent (pH) of biological liquids.	8	1	3	–	–	4
<i>Topic 5.</i> Principles of titrimetric analysis.	7	–	3	–	–	4
<i>Topic 6.</i> Buffer systems, their biological role.	7	1	3	–	–	3
<i>Topic 7.</i> Colligative properties of solutions.	9	2	3	–	–	4
<i>Topic 8.</i> Problems and tasks. Control of practical skills within the module "Acid-basic equilibrium and complex formation in biological liquids"	4	–	2	–	–	2
<i>Topic 9.</i> Final control of mastering the module "Acid-base equilibrium and complex formation in biological liquids "	4	–	2	–	–	2
<b>Total for module 1</b>	<b>60</b>	<b>6</b>	<b>25</b>			<b>29</b>



<b>Module 2. Equilibrium at the interface in biological systems</b>						
<b>Content module 1. Thermodynamics and kinetics of processes and electro kinetic phenomena in biological systems</b>						
<b>Topic 1.</b> Thermal effects of chemical reactions. The direction of the processes.	7	2	3	–	–	2
<b>Topic 2.</b> Kinetics of biochemical reactions.	6	1	3	–	–	2
<b>Topic 3.</b> Chemical equilibrium. The product of solubility.	6	1	3	–	–	2
<b>Topic 4.</b> Determination of oxidation-reduction potential.	7	2	3	–	–	2
<b>Content module 2. Physical chemistry of surface phenomena. Lyophobic and lyophilic disperse systems</b>						
<b>Topic 5.</b> Sorption of biologically active substances at the interfaces. Ion exchange. Chromatography.	9	3	3	–	–	3
<b>Topic 6.</b> Preparation, purification and properties of colloidal solutions.	9	3	3	–	–	3
<b>Topic 7.</b> Coagulation of colloidal solutions. Colloidal protection. Properties of biopolymer solutions. Isoelectric point of the protein.	8	2	3	–	–	3
<b>Topic 8.</b> Problems and tasks. Control of practical skills within the module "Equilibriums at the interfaces in biological systems".	4	–	2	–	–	2
<b>Total for module 2</b>	<b>60</b>	<b>14</b>	<b>25</b>			<b>21</b>

## MEDICAL BIOLOGY

Names of content sections and topics	Number of hours			
	Total	Including		
		lectures	practical classes	self studies
<b>Section 1. Molecular and cytological bases of human life</b>				
<b>Semantic section 1. Molecular-cellular level of organization of life</b>				
Theme 1. Introduction to the course of medical biology. Optical systems in biological research. Levels of living organization.	3.25	0.25	2	1.0

Theme 2. Cell morphology. Structural components of the cytoplasm and nucleus	3.25	0.25	2	1.0
Theme 3. Cell membranes. Transport of substances through plasmalum	5.5	0.5	2	3.0
Theme 4. Morphology of chromosomes. Human cariotype	4.0	1.0	2	1.0
Theme 5. Characterization of nucleic acids. The structure of the pro- and eukaryotic gene	3,5	0.5	2	1.0
6. Theme 6. Organization of information flow in the cell	4.0	1.0	2	1.0
7. Theme 7. Regulation of gene expression. Molecular mechanisms of human variability	3,5	0.5	2	1.0
Theme 8. Life cycle and cell division. Mitosis. Meiosis	4.0	-	2	2.0
Together in Section 1	31	4	16	11
<b>Section 2. Organic level of organization of life. Fundamentals of Genetics man</b>				
<b>Semantic section 2. Patterns of heredity and variability.</b>				
Theme 9. Features of human genetics. Mono-, di- and polyhybrid cross-sections. Mendeleting signs of a person	3.5	0.5	2	1
Topic 10. Interaction of allele and non-essential genes. Pleiotropy Multiple allelism. Genetics of blood groups.	3.5	0.5	2	1
Topic 11. Chromosomal theory of heredity. Associated inheritance. Gender Genetics	5.0	1.0	2	2
Theme 1 2 . Variability in man as a property of life and genetic phenomenon: phenotypic and genotype variability	6.0	2.0	2	2
<b>Semantic section 3. Methods of studying the heredity of man. Hereditary diseases</b>				
Theme 1 3 . Fundamentals of Medical Genetics. Methods of studying human heredity.	4.25	0.25	2	2
Theme 1 4 . Cytogenetic method. Chromosomal diseases	4.0	1.0	2	1
Theme 1 5 . Biochemical method and DNA-diagnostics. Population-statistical method. Medical genetic counseling	4.75	0.75	2	2

<b>Semantic section 4. Biology of individual development</b>				
Theme 16. Biological features of human reproduction. Gametogenesis. Fertilization	3.5	0.5	2	1
Theme 17. Features of the prenatal period of human development. Violations of ontogenesis and their place in human pathology. Molecular genetic mechanisms of ontogenesis	4.5	1.5	2	1
Theme 18. Postnatal period of human ontogenesis. Biological mechanisms of maintenance of homeostasis of an organism	7.0	2.0	2	3
Theme 19. The main lesson from sections 1, 2. "Molecular and cytological bases of human life". "Organic level of organization of life. Fundamentals of Human Genetics »	15	-	2	13
<b>Total in Section 2</b>	<b>61</b>	<b>10</b>	<b>22</b>	<b>29</b>
<b>Section 3. Population-species, biogeocoenic and biosphere levels of organization of life</b>				
<b>Semantic section 5. Medical and biological foundations of parasitism.</b>				
<b>Medical protozoology</b>				
Theme 20. Medical and biological bases of parasitism. Medical protozoology. Under the realm of <i>Protozoa</i> . Type Sarkozyguthor ( <i>Sarcomastigophora</i> ). The True Amoeba ( <i>Lobosea</i> ) Class. Type Celery ( <i>Ciliophora</i> ). Representatives of the Shilinenroth Class ( <i>Rimostomatea</i> ) are human parasites	4.5	1.0	2	1.5
Topic 21. Representatives of the Animal Animals ( <i>Zoomastigophorea</i> ) - human parasites	3.25	-	2	1.25
Topic 22. Type Apikompleksy ( <i>Api with omplexa</i> ). Representatives class Sporovyky ( <i>Sporozoa</i> ) - parasites of humans	3.25	-	2	1.25
<b>Semantic section 6. Medical helminthology</b>				
Topic 23. Medical Helminthology. Type Flat Worms ( <i>Plathelminthes</i> ). The Treasures ( <i>Trematoda</i> ) are human pathogens	5.5	0.5	2	3
Themes 24-25. Type Flat Worms ( <i>Plathelminthes</i> ). Clove ( <i>Cestoidea</i> ) - human pathogens	7.0		4	3

Themes 26-27. Type of Round worms ( <i>Nemathelminthes</i> ). Class Actually round worms ( <i>Nematoda</i> ) - human pathogens	8.0		4	4
Theme 28. Methods of abdominal diagnosis of helminthiasis	4.0		2	2
<b>Semantic section 7. Medical arachnotomology</b>				
Theme 29. Medical arachnotomology. Type Arthropoda ( <i>Arthropoda</i> ). Class Arachnids ( <i>Arachnoidea</i> ). K Springs ( <i>Acarina</i> ) - pathogens of diseases and carriers of pathogens of human diseases. Poisonous spider-like	4.5	0.5	2	2
Topic 30. Class Insect ( <i>Insecta</i> ). Tartan ( <i>Blattoidea</i> ). Diptera ( <i>Diptera</i> ) - pathogens of diseases and carriers of human pathogens	4.0	–	2	2
31. Subject class Insects ( <i>Insecta</i> ): lice ( <i>Anoplura</i> ), fleas ( <i>Aphaniptera</i> ), bugs ( <i>Hemiptera</i> ) - pathogens and vectors of human pathogens	3.0	–	2	1.0
<b>8. The relationship between individual and historical development. Biosphere and man</b>				
Topic 32-33. Synthetic theory of evolution. Population structure of humanity. The origin of man. Phylogeny of the systems of the vertebral bodies	11.0	2.0	4	5
Topic 34. Biosphere as a system of human existence.	6.0	2.0	2	2
Topic 35. Final lesson from section 3 "Population-Species, Biogeocoenic and Biosphere Levels of the Organization of Life"	9.0	–	2	7
<b>Total in Section 3</b>	<b>73</b>	<b>6</b>	<b>32</b>	<b>35</b>
<b>Total number of hours</b>	<b>165</b>	<b>20</b>	<b>70</b>	<b>75</b>

## MEDICAL AND BIOLOGICAL PHYSICS

Names of content modules and topics	Number of hours					
	total	including				
		lectures	practical classes	lab work	individual tasks	self studies
1	2	3	4	5	6	7
<b>Semantic module 1. Fundamentals of mathematical processing medical and biological data</b>						
Introductory lesson - 1 h.						
<b>Theme 1.</b> Fundamentals of differential and integral calculus.	–	2	4	–	–	3
<b>Theme 2.</b> Concept about differential equations.	–	1	4	–	–	3
<b>Theme 3.</b> Elements of probability theory and mathematical statistics	–	2	4	–	–	3
The final control work of mastering SM-1: "Fundamentals of mathematical processing of medical and biological data"	–		2	–	–	1
<b>Total for content module</b>	<b>30</b>	<b>6</b>	<b>14</b>			<b>10</b>
<b>Semantic module 2. Biological physics</b>						
<b>Theme 4.</b> Fundamentals of biomechanics and bioacoustics.	–	1,5	4	–	–	2
<b>Theme 5.</b> Physical bases of bioreology and hemodynamics.	–	1,5	4	–	–	2
<b>Theme 6.</b> Basic equilibrium and non-equilibrium thermodynamics.	–	1	4	–	–	2
Practical 2-hour class "Intermediate Modular Control: Fundamentals of Biological Physics (IMK-SM2)"	–		2	–	–	2
<b>Theme 7.</b> Biological membranes: structure, mechanisms of transport of matter.	–	1,5	4	–	–	2
<b>Theme 8.</b> Biological potentials of rest, generation and spread of potential of action.	–	1,5	4	–	–	2
<b>Theme 9.</b> Fundamentals of Electrocardiography and Reography.	–	1	4	–	–	2

<b>Theme 10.</b> Interaction of electric, magnetic and electromagnetic fields with biological tissues.	–	1	4	–	–	2
<b>Theme 11.</b> Physical bases of medical electronics	–	1	4	–	–	2
Final control work of SM-2 assimilation: "Biological physics"	–	–	2	–	–	2
<b>Total content module</b>	<b>66</b>	<b>10</b>	<b>36</b>			<b>20</b>
<b>Total hours by modules 1,2</b>	<b>96</b>	<b>16</b>	<b>50</b>			<b>30</b>
<b>Module 2</b>						
<b>Semantic module 3. Medical physics</b>						
<b>Theme 12.</b> Physical principles of optical microscopy, polarimetry, refractometry	–	1	2	–	–	2
<b>Theme 13.</b> Interaction of light with matter. Laws of thermal radiation of bodies.	–	1	2	–	–	2
<b>Theme 14.</b> Basic provisions of quantum mechanics and quantum-mechanical methods for the study of bioobjects.	–	1	2	–	–	2
<b>Theme 15.</b> Interaction of ionizing radiation with biotechnology. Basis of dosimetry.	–	1	2	–	–	2
Final control work of mastering SM-3: "Medical physics"	–		2	–	–	2
<b>Total content module 3</b>	<b>24</b>	<b>4</b>	<b>10</b>			<b>10</b>
<b>Total hours for studying the discipline "Medical and Biological Physics"</b>	<b>120</b>	<b>20</b>	<b>60</b>			<b>40</b>

## HISTORY OF MEDICINE AND INTRODUCTION TO UNIVERSITY PROJECT STUDIOS

Topic	Number of hours			
	Total	including		
		lectures	practical classes	self studies
<b>Content module 1. Medicine of the Ancient World</b>				
<b>Topic 1.</b> Medicine of the Ancient World	6	2	2	2
<b>Together with content module 1</b>	<b>6</b>	<b>2</b>	<b>2</b>	<b>2</b>

<b>Content module 2 . Medicine of the Middle Ages</b>				
<b>Topic 2.</b> Medicine of the Middle Ages	6	2	2	2
<b>Total content module 2</b>	<b>6</b>	<b>2</b>	<b>2</b>	<b>2</b>
<b>Content module 3 . Medicine of the New Time</b>				
<b>Topic 3.</b> Medicine of the Early Modern Time	6	2	2	2
<b>Topic 4.</b> Medicine of the Late New Time	6	2	2	2
<b>Together with content module 3</b>	<b>12</b>	<b>4</b>	<b>4</b>	<b>4</b>
<b>Content module 4 . Medicine and health care of the Newest time</b>				
<b>Topic 5.</b> Medicine and health of the Newest Time	6	2	2	2
<b>Total content module 4</b>	<b>6</b>	<b>2</b>	<b>2</b>	<b>2</b>
<b>Individual tasks</b>	10			10
<b>Study topics that are not part of the classroom lesson plan</b>	50			50
<b>Total hours:</b>	<b>90</b>	<b>10</b>	<b>10</b>	<b>70</b>

## HUMAN ANATOMY

<b>Topic</b>	<b>lectures</b>	<b>practical classes</b>	<b>self studies</b>	<b>Individual work</b>
<b>MODULE 1. Anatomy of the musculoskeletal system (locomotor apparatus)</b>				
<i>Thematic module 1. Introduction to anatomy</i>				
1. Subject and tasks of anatomy. Methods of research in anatomy. The main modern directions of development of anatomy	1	-	-	
2. The main stages of the development of anatomy in ancient times, in the Renaissance, in the XVII - XIX centuries.	-	-	1	
3. Development of Ukrainian Anatomical Schools	-	-	1	
4. Kyiv Anatomical School		-	-	
5. Initial stages of human embryogenesis. The doctrine of embryonic leaves.		-	1	

<i>Thematic module 2. Anatomy of the bones of the skeleton</i>				
6. Bone as an organ. Classification of bones. Development of bones in embryogenesis	1	-	1	Preparation of a review of literature on selected topics
7. Anatomical nomenclature. Axes and planes of the body.	-	1	1	
8. Anatomy of the bones of the trunk.	-	5	1	
9. Anatomy of the bones of the skull.	-	15	2	
10. Anatomy of the bones of the upper and lower extremities.	-	6	2	
<i>Thematic module 3. Joints of skeletal bones</i>				
11. Anatomy of bone joints. Development of connections between bones in ontogenesis.	2	-	1	Preparation of a review of literature on selected topics
12. Joints between the bones of the trunk and between the bones of the skull.	-	3	2	
13. Joints between the bones of the upper and lower extremities.	-	6	2	
<i>Thematic module 4. myology</i>				
14. Muscle as an organ. Classification of muscles. Development of skeletal muscles.	2	-	-	Preparation of a review of literature on selected topics
15. Anatomy of muscles and fascia of the trunk.	-	6	3	
16. Anatomy of the muscles and fascias of the head and neck. Topography of the neck.	-	6	2	
17. Anatomy of the muscles and fascias of the upper and lower extremities. Topography of the upper and lower extremities	-	9	4	
18. <b>Concluding session (practical knowledge).</b>	-		4	
19. <b>Concluding session (theoretical knowledge).</b>	-		3	
20. <b>Control work for Module 1</b>		3		
<b>Total hours is Module 1</b>	<b>6</b>	<b>60</b>	<b>31</b>	<b>6</b>
<b>MODULE 2. Splanchnology. Central nervous system and sensory organs "</b>				
<i>Thematic module 5. General anatomy of the digestive system.</i>				
1. Introduction to splanchnology. Classification of internal organs. General patterns of structure of tubular organs. General regularities of the structure of parenchymal organs	1	-	2	



2. General anatomy of the digestive system. Embryogenesis of the digestive system. Anomalies and variants of the development of organs of the digestive system	1	-	2	
3. Anatomy of the oral cavity and its derivatives	-	3	2	
4. Anatomy of the organs of the digestive canal	-	9	4	Preparation of a review of literature on selected topics
5. Anatomy of large digestive glands: liver and pancreas	-	3	2	
6. Anatomy of the peritoneum	-	3	1	
<b><i>Thematic module 6. Anatomy of the respiratory system.</i></b>				
7. General anatomy of the respiratory system. Embryogenesis of the respiratory system.	2	-	-	Preparation of a review of literature on selected topics
8. Anatomy of the organs of the respiratory system.	-	6	4	
<b><i>Thematic module 7. Anatomy of the urinary system.</i></b>				
9. General anatomy of the organs of the urinary system. Embryogenesis of the organs of the urinary system. Anomalies and variants of the development of the organs of the urinary system	2	-	2	Preparation of a review of literature on selected topics
10. Anatomy of the organs of the urinary system.	-2	3	3	
<b><i>Thematic module 8. Anatomy of the genital system</i></b>				
11. General anatomy of the male reproductive system. Embryogenesis of the organs of the male reproductive system. Variants and anomalies of development of organs of the male reproductive system	2	-	2	Preparation of a review of literature on selected topics
12. Anatomy of the organs of the male reproductive system.	-2	3	3	
13. General anatomy of the female genital system. Embryogenesis of the organs of the female genital system. Variants and anomalies of development of organs of the female genital system	2	-	2	
14. Anatomy of the organs of the female genital system. Perineum.	-2	3	3	

<b><i>Thematic module 9. Anatomy of the organs of the immune and endocrine system</i></b>				
15. General anatomy of the central and peripheral organs of the immune system	1	-	2	Preparation of a review of literature on selected topics
16. Anatomy of the organs of the immune system	-	3	2	
17. General anatomy of the endocrine organs	1	-	2	
18. Anatomy of the organs of the endocrine system	-	3	2	
<b><i>Thematic module 10. Anatomy of the spinal cord.</i></b>				
19. Introduction to the central nervous system. General principles of the structure of reflex arches. Gray and white matter of the central nervous system. Development of the central nervous system in onto- and phylogeny.	1	-	3	Preparation of a review of literature on selected topics
20. External and internal structure of the spinal cord. The structure of the spinal nerve.	-	6	5	
<b><i>Thematic module 11. Anatomy of the brain</i></b>				
21. Development of the brain in embryogenesis. Anatomy of the derivatives of the rhomboid brain and the middle brain.	1	9	8	Preparation of a review of literature on selected topics
22. Anatomy of the derivatives of the prosencephalon	2	6	4	
23. The pathways of the central nervous system	-	3	3	
24. Membrans of the brain and spinal cord. Formation and ways of circulation of the cerebrospinal fluid	-	3	2	
<b><i>Thematic module 12. Anatomy of the organs of senses.</i></b>				
25. Anatomy of the organs of senses.	2	-	-	Preparation of a review of literature on selected topics
26. Eye and structures of formations		3	4	
27. Anatomy of the ear		3	4	
28. Generalization of the material from the educational material of module №2 " Splanchnology. Central nervous system and sensory organs ".29. Practical skills from the educational material of the module №2 " Splanchnology. Central nervous system and sensory organs ".	-	6	-	
<b>Control work for Module 2</b>	-	3	3	
<b>Total hours is Module 2</b>	<b>20</b>	<b>75</b>	<b>74</b>	<b>2</b>

## HISTOLOGY, CYTOLOGY AND EMBRYOLOGY

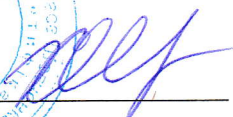
Topic	Topic and content module names					
	Total	Including				
		lectures	practical classes	lab work	individual tasks	self studies
<b>Module 1. Cytology, common histology, embryology.</b>						
Topic 1. Cytology	63	2	16			45
Topic 2. Common histology and embryology	111	12	38			61
<b>Total for Module 1</b>	<b>174</b>	<b>14</b>	<b>54</b>			<b>106</b>

Head of the Scientific-methodical Committee

 (Skrypnyk N.V.)

Deputy Director of the Institute  
in scientific and pedagogical work



 (Kharchenko O.I.)