MINISTRY OF HEALTH OF THE REPUBLIC OF BELARUS
Educational institution
BELARUSIAN STATE MEDICAL UNIVERSITY

APPROVED
First Vice-Rector, professor
S.V. Gubkin

Reg. № УД-359-32/1576 /уч.

BIOLOGY

Curriculum of Higher Educational Institution in the educational discipline for learners of the Department of Pre-University Training

Minsk BSMU 2015

COMPILERS:
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REVIEWER:
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(protocol № 2015);

RECOMMENDED FOR APPROVAL:

by the Biology Department of the Educational Institution «Belarusian State Medical University»
(protocol № 5. 21.10, 2015);

by the methodological committee of Biomedical Sciences of the Educational Institution «Belarusian State Medical University»
(protocol № 4. 01.12. 2015)

EXPLANATORY NOTE

Biology is an academic discipline comprising systematic scientific knowledge and methods of studying structural-functional organization of living matter and a human as its essential component in terms of requirements of modern medicine.

The purpose of teaching and learning the discipline «Biology» at the Department of Pre-University Training is to form:

- Solid learners' knowledge on the studied subject that would provide not only their university entrance but also their further successful education;
- modern knowledge and holistic view of general laws and organization levels of living matter; comprehension of the most difficult and important issues of the program.

Tasks of the discipline consist in the acquisition by students of academic competence which is based on the ability to self-search educational and information resources and learning methods for gaining knowledge and comprehension of:

- basic biological concepts;
- causes and mechanisms of typical biological phenomena;
- fundamental processes of vital activity at molecular-genetic and organism levels of living matter organization;

As a result of studying the discipline «Biology» a foreign learner must know:

- basic laws of structure and vital processes of organisms belonging to different kingdoms considered in the school curriculum.
- examples of human hereditary disorders.
- general laws of the nature;
- structure and vital processes of bacteria, protists, animals and human;

be able to:

- perform comparison of structure, vital processes and the role in the nature of organisms belonging to different taxonomic groups.
- characterize basic mechanisms of interaction between organisms and the environment and influence of the environment on the formation of adaptive reactions.
- apply theoretical foundations of Biology to the solution of typical problems in molecular biology and genetics.

Master (be in a command of):

- basic biological terms and concepts, laws and theories;

The structure of the curriculum for academic discipline «Biology»:

Section I. «People and health» is devoted to the study of tissues, organs and organ systems of human.

Section II. «Diversity of the organic world» study structure and vital activity of bacteria, protists, invertebrate and vertebrate animals.

Section III. «Fundamentals of cytology» intended for studying chemical composition of a cell, its envelope, cytoplasm, organelles and a nucleus; human chromosomes content and distribution of genetic material during mitotic cycle.

Section IV. «Fundamentals of genetics» includes regularities of heredity and variation and fundamentals of medical genetics.

In total, 152 academic hours are provided for studying the academic discipline. Division of the class hours according to the types of classes: 152 hours are practical classes.

Current assessment is carried out in accordance with standard curriculum in the form of examination (2^{nd} semester).

Form of education – full-time tuition.

THEMATIC PLAN

Name of section (topic)	Number of class hours
	practice
1. Section «People and health»	**54**
1.1. Biology as a science	3
1.2. Anatomy, physiology and hygiene as sciences. General view of human organism	3
1.3. Structure, junction and growth of bones	3
1.4. Structure of a skeleton	3
1.5. Muscular system	3
1.6. Internal environment of the body	3
1.7. Circulatory system. Structure and work of the heart	3
1.8. Structure of vessels. Circulations	3
1.9. Respiratory system	3
1.10. Digestive system	3
1.11. Digestive enzymes	3
1.12. Excretory system. Structure and functions of skin	3
1.13. Structure and functions of the spinal cord	3
1.14. Structure of the brain	3
1.15. Sense organs. Structure and functions of the vision organ	3
1.16. Structure and functions of the hearing organ	3
1.17. Reproductive system.	6
2. Section «Diversity of the organic world»	**45**
2.1. The concept of pro- and eukaryotes. Bacteria	3
2.2. Characteristics of the kingdom Protists.	3
2.3. Characteristics of the phylum Flatworms	3
2.4. Characteristics of the class Flukes	3
2.5. Characteristics of the class Tapeworms	3
2.6. Characteristics of the phylum Roundworms	3
2.7. Characteristics of the phylum Arthropoda	3
2.8. Characteristics of the class Arachnida	3
2.9. Characteristics of the class Insecta	3
2.10. Characteristics of the phylum Chordata	3
2.11. Characteristics of the class Bony fishes	3
2.12. Characteristics of the class Amphibia	3
2.13. Characteristics of the class Reptilia **2.14.** Characteristics of the class Mammalia	6
3. Section «Fundamentals of cytology»	**21**
3.1. A Cell as a basic structural-functional and genetic unit of living organisms	3
3.2. Cell envelope	3
3.3. Cell organelles	3

Name of section (topic)	Number of class hours	
	practice	
3.4. Structure of the cell nucleus and chromosomes	3	
3.5. Multiplication of cells. Mitosis	3	
3.6. Meiosis and its characteristics	6	
4. Section «Fundamentals of genetics»		**30**
4.1. Genetics as a science		**3**
4.2. Monohybrid cross.		**3**
4.3. Dihybrid cross.		**6**
4.4. Genetic linkage.		**3**
4.5. Genetics of sex		**3**
4.6. Variation and its types		**3**
4.7. Fundamentals of human genetics		**3**
4.8. Human hereditary disorders		**8**
Hours totally		**152**

CONTENT OF EDUCATIONAL MATERIAL

1. PEOPLE AND HEALTH

1.1. Biology as a science.

Basic properties of living matter.

1.2. Anatomy, physiology and hygiene as sciences. General view of human organism.

Tissues, organs and organ systems.

1.3. Structure, junction and growth of bones.

Concept of bone tissue. Structure of a joint.

1.4. Structure of a skeleton.

Parts of human skeleton. Main bones of the head, trunk and extremities.

1.5. Muscular system.

Skeletal muscles: structure and functions. Neural regulation of muscle work.

1.6. Internal environment of the body.

Internal environment of the body: interstitial fluid, lymph and blood. Composition of blood: plasma and corpuscles. Erythrocytes, leucocytes, thrombocytes, their structure and functions.

1.7. Circulatory system. Structure and work of the heart.

Endocardium, myocardium and epicardium. Cardiac cycle. Automatism of cardiac activity. Concept of nervous and humoral regulation of the heart's work.

1.8. Structure of vessels. Circulations.

Structural features of arteries, capillaries and veins. General and pulmonary circulations.

1.9. Respiratory system.

Respiratory organs structure and functions. Structure of the vocal apparatus.

1.10. Digestive system.

Structure and functions of the digestive organs (oral cavity, pharynx, esophagus, stomach, large and small intestines, digestive glands liver, pancreas).

1.11. Digestive enzymes.

Transformation of nutrients in the oral cavity, stomach and intestine.

1.12. Excretory system. Structure and functions of skin.

Structure and work of kidneys. Structure of the nephron. Formation of primary and secondary urine. Functions of kidneys. Derivatives of skin.

1.13. Structure and functions of the spinal cord.

Functions of nervous system. Structure and functions of the spinal cord.

1.14. Structure of the brain.

Structure and function of brain portions (medulla oblongata, cerebellum, midbrain, interbrain and forebrain). Cerebral cortex.

1.15. Sense organs. Structure and functions of the vision organ.

Concept of an analyzer, its components. Perception of light and color.

1.16. Structure and functions of the hearing organ.

Structure and significance of the hearing organ. Mechanism of sound perception.

1.17. Reproductive system.

Structure and functions of male and female reproductive systems. Structure and formation of male and female gametes.

2. DIVERSITY OF THE ORGANIC WORLD

2.1. The concept of pro- and eukaryotes. Bacteria.

Bacteria, their structure and vital processes. Parasitic bacteria. Pathogenic bacteria and measures to kill them.

2.2. Characteristics of the kingdom Protists.

Structural and vital features of an Amoeba, Euglena and Paramecium caudatum. Parasitic protists. Dysentery Amoeba, Giardia lamblia, malaria parasyte. Features of the structure and life cycles.

2.3. Characteristics of the phylum Flatworms.

Features of their structure and vital activity.

2.4. Characteristics of the class Flukes.

Features of the structure and life cycle of a liver fluke.

2.5. Characteristics of the class Tapeworms.

Features of the structure and life cycle of a beef tapeworm.

2.6. Characteristics of the phylum Roundworms.

Features of the structure, vital activity and life cycle of an Ascaris lumbricoides.

2.7. Characteristics of the phylum Arthropoda.

Features of their structure and vital activity.

2.8. Characteristics of the class Arachnida.

Features of the structure and vital activity of ticks. Ticks and mites as transmitters and causative agents of diseases. Measures of protection from ticks.

2.9. Characteristics of the class Insecta. Features of their structure and vital activity. Reproduction and life cycles of insects

2.10. Characteristics of the phylum Chordata.

Features of the structure and vital activity of a lancelet.

2.11. Characteristics of the class Bony fishes.

Features of the structure and vital activity of fishes, their significance.

2.12. Characteristics of the class Amphibia.

Features of the structure, vital activity and development, their significance.

2.13. Characteristics of the class Reptilia.

Features of the structure, vital activity and development, their significance.

2.14. Characteristics of the class Mammalia

Features of the structure, vital activity and development, their significance.

3. FUNDAMENTALS OF CYTOLOGY

3.1. A Cell as a basic structural-functional and genetic unit of living organisms.

Main statements of the Cell Theory. Water and mineral salts, their role in the cell. Organic substances: proteins, fats, carbohydrates, their structure andfunctions.

3.2. Cell envelope.

Structure and functions of a cell membrane and envelope. Types of substance passing into the cell.

3.3. Cell organelles.

Main organelles of the cell (ER, ribosomes, Golgi complex, mitochondria, lysosomes, plastids, centrosomes), the peculiarities of their structure and function. Metabolism of the cell. Autotrophic and heterotrophic, aerobic and anaerobic cells.

3.4. Structure of the cell nucleus and chromosomes.

The concept of nuclear envelope, nucleoli, nuclear sap and chromatin. Functions of the nucleus, structure of chromosomes: centromere, arms, secondary constriction, satellite. Types of chromosomes: metacentric, submetacentric, acrocentric. Rules of chromosomes.

3.5. Multiplication of cells. Mitosis.

Characteristics of the interphase. The stages of mitosis and their characteristics. Changes of the genetic material content during the interphase and during mitosis.

3.6. Meiosis and its characteristics.

The concept of chromosomal conjugation and crossing-over, haploid and diploid chromosome complement. Changes of the genetic material content.

4. FUNDAMENTALS OF GENETICS

4.1. Genetics as a science.

Basic concepts of genetics: gene, genotype, phenotype; allelic, dominant and recessive genes; homo- and heterozygotes; alternative characters. Structure and functions of nucleic acids (DNA and RNA). Protein synthesis in the cell.

4.2. Monohybrid cross.

Law of hybrid uniformity and law of segregation, their cytological basis.

4.3. Dihybrid cross.

Law of independent assortment, its cytological basis.

4.5. Genetic linkage.

Linkage groups. Morgan's experiments. Complete and incomplete linkage. Chromosome Theory of Inheritance.

4.6. Genetics of sex.

The concept of autosomes and heterochromosomes. Inheritance of sex-linked characters.

4.7. Variation and its types.

Modificatory variability and the norm of reaction. Genotypic variability: of combinative and mutative. Gene, chromosome and genome mutations.

4.8. Fundamentals of human genetics.

The difficulties of studying human genetics. Research methods: cytogenetic, biochemical, genealogical.

4.9. Human hereditary disorders.

Albinism, phenylketonuria, daltonism, hemophilia, Down syndrome, Klinefelter syndrome, trisomy X, Shereshevsky-Turner syndrome, Cri du chat syndrome. The genetic counseling.

Educational Chart of the Discipline «BIOLOGY»
for Foreign Learners of the Department of Pre-University Training of BSMU

The number of the section, topic	Name of the section, topic, class; list of issues for studying	The number of class hours	Literature	Form of knowledge assessment
		Practical classes		
1	2	3	4	5
1	**People and health**	**54**		
1.1	Biology as a science. 1. Biology as a science. 2. Basic properties of living matter.	3	[1] [2] [4]	Colloquy tests
1.2	Anatomy, physiology and hygiene as sciences. General view of human organism. 1. Anatomy, physiology and hygiene are sciences studying structure and functions of a human organism and human health preservation. 2. Tissues, organs and organ systems in the human organism.	3	[1] [2] [4]	Colloquy tests
1.3	Structure, junction and growth of bones. 1. Structure and growth of bones. 2. Bone junctions: mobile and semi-mobile junctions. **3.** Structure of a joint.	3	[1] [2] [4]	Colloquy tests
1.4	Structure of a skeleton. 1. Parts of human skeleton (head, trunk, limbs and their girdles). 2. Functions of the human skeleton.	3	[1] [2] [4]	Colloquy tests
1.5	Muscular system. 1. Skeletal muscles, their structure and functions. 2. Neural regulation of muscle work. Functions of the muscular system.	3	[1] [2] [4]	Colloquy tests

The number of the section, topic	Name of the section, topic, class; list of issues for studying	The number of class hours	Literature	Form of knowledge assessment
		Practical classes		
1.6	Internal environment of the body. 1. Internal environment of the body: interstitial fluid, lymph and blood. Functions of blood 2. Composition of blood: plasma and corpuscles: erythrocytes, leucocytes, thrombocytes, their structure and functions.	3	[1] [2] [4]	Colloquy tests
1.7	Circulatory system. Structure and work of the heart. 1. Circulatory system: heart, arteries, capillaries, veins. 2. Heart, its structure and work. 3. Nervous and humoral regulation of the heart's work.	3	[1] [2] [4]	Colloquy tests
1.8	Structure of vessels. Circulations. 1. Structural of vessels (arteries, capillaries and veins). Blood circulation through vessels. 2. General and pulmonary circulations.	3	[1] [2] [4]	Colloquy tests
1.9	Respiratory system. 1. Respiratory organs, their structure and functions. 2. Structure of the vocal apparatus.	3	[1] [2] [4]	Colloquy tests
1.10	Digestive system. 1. Digestive system and its parts. Digestive enzymes. 2. Structure of the oral cavity, stomach and intestines.	3	[1] [2] [4]	Colloquy tests
II SEMESTER				
1.11	Digestive enzymes. 1. Digestive enzymes and their properties. 2. Digestion in the oral cavity, stomach and intestine.	3	[1] [2] [4]	Colloquy tests

The number of the section, topic	Name of the section, topic, class; list of issues for studying	The number of class hours	Literature	Form of knowledge assessment
		Practical classes		
1.12	Excretory system. Structure and functions of skin. 1. Structure of excretory organs. 2. Nephron – the structural-functional unit of kidneys. Formation of primary and secondary urine. 3. Functions of kidneys. 4. Structure and functions of skin.	3	[1] [2] [4]	Colloquy tests
1.13	Structure and functions of the spinal cord. 1. Functions of the nervous system. 2. Structure of the spinal cord. 3. Functions of the spinal cord.	3	[1] [2] [4]	Colloquy tests
1.14	Structure of the brain. 1. The brain, structure and function of its portions. 2. Significance of the cerebral cortex.	3	[1] [2] [4]	Colloquy tests
1.15	Sense organs. Structure and functions of the vision organ. 1. Sense organs. Analyzer. 2. Structure and functions of the vision organ.	3	[1] [2] [4]	Colloquy tests
1.16	Structure and functions of the hearing organ. 1. Structure and functions of the outer, middle and inner ears.	3	[1] [2] [4]	Colloquy tests
1.17	Reproductive system. 1. Structure and functions of male reproductive system. 2. Structure and functions of female reproductive system. 3. Formation of gametes.	3	[1] [2] [4]	Colloquy tests
	Concluding class on the section «People and health»	3	[1] [2] [3] [4] [5]	Control works, tests, control questioning

The number of the section, topic	Name of the section, topic, class; list of issues for studying	The number of class hours	Literature	Form of knowledge assessment
		Practical classes		
2.	**Diversity of the organic world**	**45**		
2.1	The concept of pro- and eukaryotes. Bacteria. 1. Structural features of a bacterial cell. 2. Vital processes of bacteria. 3. Role of bacteria in the nature. 4. Pathogenic bacteria and measures to kill them.	3	[1] [2] [4]	Colloquy tests
2.2	Characteristics of the kingdom Protists. 1. Free-living protists: Amoeba, Euglena and Paramecium caudatum. Features of the structure and vital processes. 2. Characteristics of parasitic protists.	3	[1] [2] [4]	Colloquy tests
2.3	Characteristics of the phylum Flatworms. 1. General characteristics of the phylum Flatworms. 2. Taxonomy of flatworms. 3. Features of structure and vital activity of flatworms. Medical significance.	3	[1] [2] [4]	Colloquy tests
2.4	Characteristics of the class Flukes. 1. Features of the internal and external anatomy of a liver fluke. 2. Features of the life cycle of a liver fluke.	3	[1] [2] [4]	Colloquy tests
2.5	Characteristics of the class Tapeworms. 1. Features of the internal and external anatomy of tapeworms. 2. Structural features and the life cycle of a beef tapeworm.	3	[1] [2] [4]	Colloquy tests
2.6	Characteristics of the phylum Roundworms. 1. Features of the internal and external anatomy of roundworms. 2. Features of the structure and vital activity of an Ascaris Lumbricoides. 3. Life cycle of an Ascaris Lumbricoides.	3	[1] [2] [4]	Colloquy tests

The number of the section, topic	Name of the section, topic, class; list of issues for studying	The number of class hours	Literature	Form of knowledge assessment
		Practical classes		
2.7	Characteristics of the phylum Arthropoda. 1. General characteristics and taxonomy of the phylum Arthropoda. 2. Features of their structure and vital activity.	3	[1] [2] [4]	Colloquy tests
2.8	Characteristics of the class Arachnida. 1. General characteristics of the class Arachnida, features of their structure and vital activity. 2. Features of the structure and vital activity of ticks. 3. Ticks and mites as transmitters and causative agents of diseases. Measures of protection from ticks.	3	[1] [2] [4]	Colloquy tests
2.9	Characteristics of the class Insecta. 1.General characteristics of the class Insecta. features of their structure and vital activity 2. Reproduction and life cycles of insects.	3	[1] [2] [4]	Colloquy tests
2.10	Characteristics of the phylum Chordata. 1. General characteristics of the phylum Chordata. 2. Taxonomy of the phylum Chordata. 3. Characteristics of the class Lancelets.	3	[1] [2] [4]	Colloquy tests
2.11	Characteristics of the class Bony fishes. 1. General characteristics of the class Bony fishes. 2. Features of the structure and vital activity of fishes that adapt them to the water environment.	3	[1] [2] [4]	Colloquy tests
2.12	Characteristics of the class Amphibia. 1. General characteristics of the class Amphibia: features of the structure and vital activity, reproduction and development of amphibians.	3	[1] [2] [4]	Colloquy tests

The number of the section, topic	Name of the section, topic, class; list of issues for studying	The number of class hours	Literature	Form of knowledge assessment
		Practical classes		
2.13	Characteristics of the class Reptilia. 1. General characteristics of the class Reptilia. 2. Features of the structure and vital activity, reproduction and development of reptiles.	3	[1] [2] [4]	Colloquy tests
2.14	Characteristics of the class Mammalia. 1. Taxonomy of the class Mammalia. 2. Characteristics of the class Mammalia: Features of the structure and vital activity of mammals. 3. Reproduction and development of mammals.	3	[1] [2] [4]	Colloquy tests
	Concluding class on the section «Diversity of the organic world»	3	[1] [2] [3] [4] [5]	Control works, tests
3.	**Fundamentals of cytology**	**21**		
3.1	**1.**A Cell as a basic structural-functional and genetic unit of living organisms. **2.** Main statements of the Cell Theory. **3.** Non-organic substances: water and mineral salts, their role in the cell. **4.** Proteins, their structure and functions. Structure and functions of carbohydrates. Structure and functions of lipids.	3	[1] [2] [4]	Colloquy tests
3.2	Cell envelope. 1. Cytoplasmic membrane, its models, structure and functions. 2. Passive transport of substances into the cell. 3. Active transport of substances into the cell.	3	[1] [2] [4]	Colloquy tests

The number of the section, topic	Name of the section, topic, class; list of issues for studying	The number of class hours	Literature	Form of knowledge assessment
		Practical classes		
3.3	Cell organelles. 1. Classification of cell organelles. 2. Structure and functions of the membrane-bound cell organelles of general purpose (endoplasmic reticulum, Golgi complex, lysosomes, mitochondria and plastids). 3. Structure and functions of the non-membrane cell organelles (ribosomes, centrosomes). 4. Metabolism and energy transformation. The concept of autotrophs and heterotrophs.	3	[1] [2] [4]	Colloquy tests
3.4	Structure of the cell nucleus and chromosomes. 1. Structure and functions of the nucleus. 2. Structure of a metaphase chromosomes. 3. Types of chromosomes. Rules of chromosomes.	3	[1] [2] [4]	Colloquy tests
3.5	Multiplication of cells. Mitosis. 1. Reproduction – a fundamental property of living matter. 2. Stages of the interphase and their characteristics. 3. Stages of the mitosis and their characteristics.	3	[1] [2] [4]	Colloquy tests
3.6	Meiosis and its characteristics. 1. Characteristics of stages of meiosis I and meiosis II. Changes of the genetic material content. 2. Similarities and differences of mitosis and meiosis.	3	[1] [2] [4]	Colloquy tests
	Concluding class on the section «Fundamentals of cytology»	3	[1] [2] [3] [4] [5]	Control works, tests, control questioning

The number of the section, topic	Name of the section, topic, class; list of issues for studying	The number of class hours	Literature	Form of knowledge assessment
		Practical classes		
4.	**Fundamentals of genetics**	**30**		
4.1.	Genetics as a science. 1. Subject matter of Genetics. 2. Structure and functions of nucleic acids (DNA and RNA). 3. Gene. Genetic code. Protein biosynthesis in the cell.	3	[1] [2] [4]	Colloquy tests
4.2.	Monohybrid cross. 1. The concept of alleles. Homozygotes and heterozygotes. 2. The law of hybrid uniformity. 3. The law of segregation.	3	[1] [2] [4]	Colloquy tests
4.3.	Dihybrid cross. 1. Law of independent assortment, its cytological basis. 2. Significance of Mendel's laws.	3	[1] [2] [4]	Colloquy tests
	Solving problems on monohybrid and dihybrid crosses.	3	[1] [2] [4]	Colloquy tests
4.4	Genetic linkage. 1. Morgan's experiments. 2. Complete and incomplete linkage. 3. Basic statements of the Chromosome Theory of Inheritance.	3	[1] [2] [4]	Colloquy tests
4.5	Genetics of sex. 1. Sex as a biological characteristic. 2. Chromosomal sex determination. 3. X-linked and Y-linked inheritance.	3	[1] [2] [4]	Colloquy tests

The number of the section, topic	Name of the section, topic, class; list of issues for studying	The number of class hours	Literature	Form of knowledge assessment
		Practical classes		
4.6	Variation and its types. 1. Variation, its types. The roles of the genotype and the environment in phenotype formation. 2. Reaction norm. 3. Modificatory variability, its properties. 4. Genotypic variability.	3	[1] [2] [4]	Colloquy tests
4.7	Fundamentals of human genetics. 1. Human as an object of genetic investigations. 2. Methods of human genetics (genealogical, cytogenetic, biochemical methods).	3	[1] [2] [4]	Colloquy tests
4.8	Human hereditary disorders. 1. Gene and chromosome disorders (albinism, phenylketonuria, daltonism, hemophilia, Down syndrome, Klinefelter syndrome, trisomy X, Shereshevsky-Turner syndrome, Cri du chat syndrome). 2. Prophylaxis of genetic disorders. The genetic counseling.	3	[1] [2] [4]	Colloquy tests
	Concluding class on the section «Fundamentals of genetics»	3	[1] [2] [3] [4] [5]	Control works, tests, control questioning
	Concluding class on the section «Fundamentals of genetics»	2	[1] [2] [3] [4] [5]	Examination

Head of the Biology Department V.E. Butvilovsky

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INFORMATION AND METHODOLOGICAL PART

LITERATURE

Basic:

1. Biology. Pre-university course : instruction aid / V.E. Butvilovsky, Ye.A. Chernous, A.V. Butvilovsky, V.V. Grigorovich, Ye.A. Romanovsky. 1st edition – Minsk, «Vitposter», 2015. – 192 p.

2. Biology. Pre-university course. Illustrations : practical book / V.E. Butvilovsky, , V.V. Grigorovich, Ye.A. Romanovsky, A.V. Butvilovsky – Minsk: BSMU, 2015. – 110 c.

3. Tests on biology for English studying international students of preparatory department = Контрольные работы по биологии для слушателей подготовительного отделения иностранных учащихся : метод. рекомендации / В.Э. Бутвиловский [и др.]. – Минск : БГМУ, 2016. – 92 с.

Additional:

4. Заяц Р.Г., Бутвиловский В.Э., Давыдов В.В. Биология: весь школьный курс в таблицах. Минск : Юни пресс Маркет», 2014. – 672 с.

5. Бутвиловский В.Э., Давыдов В.В., Заяц Р.Г., Рачковская И В. /Биология для подготовительного отделения: сборник задач – 4-е изд. испр. // - Минск БГМУ, 2015. – 122 с.

LIST OF USED DIAGNOSTIC METHODS

The following forms are used for competence diagnostics:

1. Oral form:

- Interview.

2. Written form:

- Tests.
- Control questioning.
- Control works.

3. Oral-written:

- Examination.

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Curriculum content, composition and the accompanying documents conform to specified requirements.

Dean of the Faculty of Career Guidance and pre-University Training A.V. Butvilovsky

«01» 12 2015.

Methodologist of the Educational Institution «Belarusian State Medical University» S.A. Kharitonova

«01» 12 2015.

Head of the Foreign Languages Department M.N. Petrova

«01» 12 2015.

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