

CATALOGUE OF ELECTIVE DISCIPLINES MASTER'S LEVEL

SPECIALTY: "7M051-BIOLOGICAL AND RELATED SCIENCES" (BIOLOGY)

Cycles of disciplines	Cycles of disciplines	Cycles of disciplines
<i>БД/CD</i>	<b>ЦИКЛ БАЗОВЫХ ДИСЦИПЛИН(БД)/ / CYCLE OF CORE DISCIPLINES(CD)</b>	<b>35</b>
1.	<b>Теоретическая биология//Theoretical biology</b>	<b>5</b>
	Goal: Formation views about the theoretical ones the basics and methodological recommendations approaches to history and methodologies biology and usage received knowledge and skills for the solution professional services tasks. Laws theoretical biologies. ММетодологические reason theoretical biology.Competences: analyze it historical data and modern ones socially significant biological data problems and processes; explain entity methodological issues approaches and methods practiced in the modern era biology.	
2.	<b>Экспериментальная биология/Experimental biology</b>	<b>5</b>
	Goal: formation theoretical issues scientific knowledge and practical ones skills by section biology.Content: Experimental version biology – comprehensive science that studies entity biologics processes and events on the site based on the application accurate physical measurements and chemical ones methods. Methods experimental biology. Main stages scientific research. Means of scientific research research (material, mathematical features, logical values, informational, language versions). Methods scientific research: theoretical, empirical data. Competencies: own skills productions biological the experiment, processing and interpretations received data entry.	
3.	<b>Современные технологии обучения биологии в высшей школе/Modern ones technologies teaching</b>	<b>5</b>

	<b>biology in high school</b>	
	Goal: Mastering practical skills technologies training biology. Concept pedagogical system technology training. Classification teaching methods technologies training center (Selevko A. S., A.V. Volkov etc.). Application ICT. Application oriented-personal technologies training. Author's notes technologies training. Technologization educational process in high school. Competences: output professional services practical teaching skills biology in the high school.	
	<i>Синтетическая биология/Synthetic version biology</i>	
	Synthetic version biology – new area biology, the goal which is design and creation new biologics systems that do not meeting people in nature. She engaged in adding to existing ones in the body properties, for example, bacteria, new ones properties or modification already existing. In the future planned create individual capable of independent existence and reproduction organisms with strictly set values properties.	
	<i>Организация биологического эксперимента/Organization biological an experiment</i>	
	Goal: formation theoretical issues scientific knowledge and practical ones skills required to a research biologist, extension scientific horizon, output abilities ready for production and conducting the experiment, analysis and critical understanding achievements modern science. Competencies: have an idea about the essence of General scientific research and specifically-scientific ones methods and principles research in biology; about issues planning and organizations an experiment.	
<b>КП</b>	<b>ЦИКЛ ПРОФИЛИРУЮЩИХ ДИСЦИПЛИН (ПД) /CYCLE PROFILEDH DISCIPLINES' (PD)</b>	<b>49</b>
<b>1.</b>	<b>Научные аспекты современной этологии/Scientific aspects of modern medicine ethology</b>	<b>5</b>
	Goal: the formation of knowledge according to ethology, zoo psychology and comparative information psychology. Appearance, forms of manifestation and patterns mental illness processes animals. Differences in behavior animals based on at the genetic level level. Complex ones behavioral data animal reactions in relationships with the external environment. Innate diseases and purchased items adaptations animals. Competences: identify and fix it behavior animals developing as a result violations homeostasis (incorrect	

	feeding, operation) and development frustrations (incorrect content animals stress).	
<b>2.</b>	<b>Метаболическое обеспечение роста и развития живых организмов/Metabolic software growth and development living organisms</b>	<b>5</b>
	<i>Goal:</i> explore main features patterns growth and development living organisms. <i>Content.</i> Aboutsnovnye stages of development living organisms (Embry-onal, juvenile, reproductive, old age). Regulation systems and integration. Hormonal therapy the control system. Organizational level integration level. Influence of external factors factors affecting the growth and development living organisms. <i>Competences:</i> formation complete presentation about process manipulation growth and development living organisms.	
	<i>Научные основы рационального использования фауны/Scientific fundamentals of rational thinking usage fauna</i>	
	Goal: Provide knowledge of geographical features distribution living organisms on the planet and reasons its changes in time and in space. Strategy and main approaches to protect the animal the world. Structure environmental management legislation. Commercial operations vertebrate species animals Kazakhstan.Protected areas and red books types of animals countries. Main features biotechnical systems events, conducted in the hunting grounds farms with the purpose of saving and no reproduction resource groups animal species. Competences: modern ones security issues biological diversity and rational usage biologics resources.	
	<i>Функциональные системы организма/Functional features systems of the body</i>	
	Goal: the study theories functional systems, disclosure patterns their organizations, the basics of integrative approach b physiology. Content: Organ type and system level approach. General properties functional systems. Intersystem links relationships in the body. System requirements relationships a person with environment the environment. Competences: the formation of knowledge physiological factors human functions in various ways terms of it life activity, efficiency adaptive ones results, satisfying various needs the organism.	

	<i>Прикладная физиология/Applied physiology</i>	
	Goal: studying General and private patterns works of the living organisms in accordance with with their special features tasks.Content: Directions applied physiology. Evolutionary physiology. Physiology labor. Environmental and physiological factors problems adaptations. Medical and biological equipment the direction. Physiology agricultural products animals. Competences: ready carrying out applications research, applications received knowledge when solving tasks, directed for improvement quality of life population, conditioned health.	<b>5</b>
	<b>Прикладные аспекты биологии развития/Applied aspects of the biology of development</b>	<b>5</b>
	Goal: The study applied aspects and methods genetic engineering, selections, technologies artificial fertilization. Content: Modern ones applications methods of biology development: artificial insemination, extracorporeal fertilization, transplantation embryos, cloning, creation transgenic plants animals and plants.Competences: formation basic knowledge directions applications biologics views and methods in related areas: veterinary services medicine, genetics, Yandex map editor economy.	
<b>3.</b>	<i>Физиология экстремальных состояний/Physiology extreme events States</i>	
	Goal: learning mechanisms formations compensatory and adaptive devices reactions of the body a person at the same time extreme events States. Content: Structure extreme state. Structural and functional testing modeling. Stress. Toonception non-specific system requirements mechanisms development extreme events States and nEU-specific resistance of the organism. Emergency adaptation. Competences: formation knowledge compensatory and adaptive devices mechanisms, developing countriesunder extreme conditions States; presentation about mechanisms stress; apply knowledge of the development extreme events situations.	
<b>4.</b>	<i>Полевые исследования в зоологии/Field data research in Zoology</i>	

	<p>Purpose special courses it is introduction with the main ones modern methods, applicable in the field Zoological collections research. During the special course considered basic methods field work with all groups land-based vertebrates animals. Organization and stages of research research in the field conditions.Planning observations. Invasive and non-invasive methods in Zoological research research. Lifetime data methods, application in different groups vertebrates. Importance lifetime field methods research in modern conditions conditions. Methods field fixes observations. Competencies: Mastering practical field skills research.</p>	
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