

Ministry of Agriculture of the Republic of Kazakhstan  
S. Seifullin Kazakh Agrotechnical University

Considered  
at a meeting of the University  
Academic Council  
Protocol No. 15  
from "30" 05 2019



APPROVED  
Chairman of the Board  
"S. Seifullin Kazakh Agrotechnical  
University"

A.K. Kurishbayev  
05 2019

**CATALOG OF UNIVERSITY AND ELECTIVE DISCIPLINES  
FOR TRAINING DIRECTION  
6M0832- FOREST RESOURCES AND FORESTRY**

The catalog of university and elective disciplines for training direction 6M0832 "Forest resources and forestry" – Nur-Sultan, 2019. - 10p.

This catalog contains the list and content, post- and prerequisites, the volume of credits for disciplines of the university and elective components offered by the university for mastering the master's education program for direction 6M0832 "Forest Resources and Forestry" and is intended for undergraduates studying on the credit system.

## **Explanatory note**

Dear master students! Under the credit system of education, the obligatory element of the educational complex of the educational program is the catalog of university and elective disciplines (CUED) in the direction of training. CUED is a list of disciplines included in the university component and the component for the choice of educational programs in the framework of the 6M0832 training area “Forest Resources and Forestry”.

The catalog of disciplines is used by students in the preparation of an individual curriculum developed by the student personally under the guidance of an adviser, taking into account the individual abilities of the student, the prospects for its growth, the needs of the labor market and production.

The catalog offers disciplines that allow students to form their educational path in accordance with the educational program as part of the training direction.

In order to form his educational trajectory, the undergraduate must master all the disciplines of the compulsory and university components in accordance with the educational program, and also select several disciplines of choice for study from the catalog.

The catalog of disciplines of the university component, unified for the direction of preparation  
6M0832 "Forest resources and forestry"

№	Name of EP	Discipline cycle	Name of the discipline	Number of loans	Trimester	Summary of discipline (topic names)	Learning outcomes of discipline	Prerequisites	Post requisites
Магистратура									
1.	“Sustainable natural resource management”	BD	Research organization	5	2	Organization and conduct of scientific and experimental research. Definition of basic statistics and analysis. Methods of organization, planning and implementation of the experiment and observation in the forest pilot business and forestry production. Methods of biometrics, the principles of the composition of variational series. Correlation, regression and analysis of variance.	As a result of studying the discipline, the undergraduate should know: the methods of organization, planning and implementation of the experiment and observation in the pilot forestry and forestry production; be able to: use the simplest methods of biometry, the principles of the composition of the variation series; - apply statistical methods to solve specific applied problems of special disciplines; - make observations, make variational series, calculate statistical indicators and analyze research results; - carry out correlation, regression and analysis of variance	Career Oriented Foreign Language, Climate Change and the Green Economy	Defense of the master's thesis
2.		BD	Principles of Biological Resources Monitoring Organizations	5	3	Organization of logging for thinning, transportation, storage and processing of wood raw materials and waste, collection of non-wood and food products and by-products. Organization of production at forestry facilities. Organization of growing decorative planting material and obtaining seeds in nurseries, flower and other farms. Organization of work on the exploitation and maintenance of green spaces. Classification of forest plant resources. Protective forests, their purpose. The system of SPNA, the procedure for their organization and legal protection regimes. Forests located in water protection zones. Classification of forest products. Logging and woodworking waste. Methods of collecting and processing chopping residues. Forest food resources. Measures for the rational exploitation of mushroom and berry deposits and increase their productivity. Organization of procurement of medicinal	Undergraduates should receive theoretical and practical skills in determining the types and volumes of forest resources, assessing the cost of forestry work and forest products. Put into practice theoretical knowledge to identify the relationship between forest resources and the conditions for their formation. To be able to substantiate their position on the identification of new types of forest resources. Have a sense of tolerance, respect the opinions of other specialists. Pay much attention to the key issues of the rational use of forest resources, the widespread use of forests for recreational and tourism	Plant and Animal Biodiversity, Plant Ecology	Biodiversity and methods for its assessment

						raw materials.	purposes		
3.		BD	Environmental control	5	3	<p>Environmental control. The purpose, objectives and types of environmental control. Bodies exercising state control in the field of environmental protection, protection, reproduction and use of natural resources. Directions, organizations of state environmental control. Priority controlled environmental parameters. Diagnostics and effective chemical-analytical control of environmental objects. Environmental impact control methods (bioindication, bioassay, etc.). Methods for the determination of pollutants. Spectrophotometry, atomic absorption and atomic emission spectroscopy, polarography as the main methods of analysis of environmental objects. Gas-liquid, high-performance liquid chromatography and gas chromatography-mass spectrometry as the main methods of identification and quantification of toxicants. Specificity of sampling and sample preparation in the analysis of environmental objects. The main tasks and types of environmental and analytical monitoring. The main organizations carrying out environmental and analytical monitoring.</p>	<p>Have an idea of the technogenic impact on the environment and methods for assessing environmental risk; the importance of environmental knowledge for every citizen of the state;</p> <p>To know and understand: the flow of chemical compounds that pollute the environment, their patterns of accumulation and distribution in the environment, as well as methods for their disposal and disposal. Physico-chemical basis for the interaction of pollutants with other compounds of anthropogenic origin, their impact on the environment and living organisms; the device of modern devices and operating principles, the features of each method of analytical control; about the intricacies of modern devices;</p> <p>Be able to prepare solutions of acids, salts and alkalis, prepare samples of samples of polluting substances for analysis;</p> <p>To acquire practical skills in independent experimental work on the determination of pollutants on modern instruments; conducting an environmental impact assessment of certain facilities.</p>	<p>Air protection, Water protection, Bioindication, Environmental monitoring</p>	<p>Human influence on ecological systems</p>
4.		BD	Cadastre of bioresources	3	5	<p>Scientifically based system of measures aimed at reducing the period of reproduction of forest resources as a result of the use of varietal seeds, large planting material. Optimization of forest growing technology. The use of mechanization, automation and chemicalization of forestry production. Modern industrial technologies for growing forests for various purposes. Types of felling. Activities promoting natural regeneration of the forest. Organization of</p>	<p>To know modern industrial technologies for growing forests for various purposes, methods of creation and care. To acquire practical skills in drafting plantation crops, planning and compiling settlement and technological maps, organizing the economic activities of a forest enterprise in a</p>	<p>General ecology</p>	<p>Undergraduate practice</p>

						multi-purpose plantation farms for growing tree and shrub species.	market economy. To be able to choose the most economical method of growing forests for various purposes, to carry out calculations and analyze them. To be able to convey your point of view, prove the correctness of the decision, work with scientific literature and do its analysis, study innovative methods and put them into practice		
5.		BD	Human influence on ecological systems	5	5	Forest, steppe, desert and aquatic biogeocenoses, features of their structure and functioning. Agroecosystems as artificial ecosystems, their species. Their differences from natural ecosystems. Cyclical changes, succession. Succession examples. Stability and resilience of ecosystems. Man in the food system. The concentration in the human body of foreign harmful substances from the environment. Biochemical circulation of substances and energy processes in the biosphere. The role of human economic activity in the cycle of substances. The concept of the noosphere. Forms of human exposure to the biosphere. Anthropogenic influences on the atmosphere, hydrosphere and lithosphere. Global, national and local environmental problems, causes, consequences. The consequences of violation of natural laws. Anthropogenic impacts on environmental components. Air pollution. Freshwater and oceans pollution. Anthropogenic soil changes. Characterization of pollution: physical, physico-chemical, biological. Human influence on flora and fauna. Radioactive pollution of the biosphere. Real hazards to the environment from human activities. Ecological violation. Environmental monitoring.	<p>To have an idea about natural and artificial ecosystems, about forms of human impact on the biosphere and about the danger to the environment from human economic activity.</p> <p>To know and understand: the laws of the functioning of ecosystems, the principles of the influence of foreign substances on human health, the consequences of anthropogenic impact on nature,</p> <p>state and public environmental protection measures,</p> <p>legal issues of environmental safety.</p> <p>be able to:</p> <ul style="list-style-type: none"> <li>- independently use the knowledge in this discipline to analyze, correctly assess and predict the environmental situation in the environment.</li> </ul> <p>To acquire practical skills in using modern methods of bioecological research, presenting these results, and also monitoring the environment.</p>	Agri-soil science, Plant and animal biodiversity, Plant ecology	Master's research work
6.		BD	Landscape farming	4	5	Features of landscape farming, crop rotation under various conditions of the relief, tillage, and crop rotation under various conditions of the soil, tillage and features of weed control under various elements of the relief. Fundamentals of scientific agriculture, tillage, crop rotation, farming systems. Soil protection against wind and water erosion. Methods that ensure the conservation and improvement of	<p>To study the general fundamentals of the theoretical part of landscape farming. Know: the state and formation of landscapes in Kazakhstan. The scientific basis of soil cultivation, types of erosion and measures to combat it. Types of weeds and</p>	Agricultural soil science, Ecology and Sustai	Master's research work

						soil fertility in various types of landscapes and environmental conditions; the principles of minimizing soil cultivation, increasing the efficiency of fertilizer application, preserving soil from erosion and creating favorable conditions for the growth and development of forest crops	measures to control them; scientific basis of crops, the rules of agroecological formation of landscapes.	nable Development	
7.		PD	Strategic management	5	2	The essence and content of strategic management. Company strategy development. Features of the business unit strategy. Corporate strategy: managing a package of types of business. Analysis and assessment of the external environment of the organization. Analysis and assessment of the internal environment of the organization. Competitive company strategies. Corporate diversification strategies. Strategic analysis of diversified companies. Implementation of the strategy HR strategy. Strategic change management. The role of culture in implementing the organization's strategy. Features of strategic management in Kazakhstan. State development strategy in the context of global integration.	As a result of studying the discipline, the undergraduate should know: - basic concepts in marketing: demand, supply, market, types of demand; - the use of advertising as a means of promoting goods; - the role of marketing in a market economy; - theoretical and practical aspects of organization management; - management in a market economy; - methods of motivation to increase labor productivity; - management structure at forestry and environmental enterprises. Should be able to: - use various ways of motivation to increase labor productivity; - manage forestry and environmental enterprises in a market economy	Fundamentals of economic theory Environmental documentation in enterprises	Master's research work
8.		PD	Biodiversity and its assessment methods	5	4	Interconnections of abiotic and biotic components of forest ecosystems. The functional organization of the forest biocenosis, its floristic, population, ecological composition, the structural organization of the forest biocenosis, the vertical and horizontal structure of the forest biocenosis, the classification and characterization of forest phytocenoses by age and origin. The dynamics of forest biogeocenoses. The biosphere role and economic importance of forest biogeocenoses, the main measures for their conservation and protection, increase productivity and enhance protective functions. The forecast of the course of biogeocenotic processes under the influence of abiotic, biotic and	Knowledge and understanding of all components of animate and inanimate nature that make up a single whole - the forest, to know the structural and functional organization of forest biogeocenosis. To be able to predict the course of biogeocenotic processes under the influence of abiotic, biotic and anthropogenic factors, to select the most effective measures to prevent them. Be able to analyze and draw conclusions. Respect	Plant and Animal Biodiversity, Plant Ecology	Master's research work

						<p>anthropogenic factors.</p> <p>Multifunctional forest management is studied taking into account all the functions performed by forests in the organization and management of forestry (environmental functions, water control, climate control function, soil protection function, economic functions, side use, recreation and recreation).</p>	<p>the opinions of other specialists, prove the correctness of their point of view. To be able to work with scientific literature, be able to introduce modern technologies for the rational exploitation of forest resources, and increase productivity.</p> <p>The acquisition of knowledge, skills, skills of the following sections of this course:</p> <ul style="list-style-type: none"> <li>- landscape elements, mudflow protection functions of the forest, environment-forming functions;</li> <li>- the influence of climatic factors (global warming, precipitation and desertification);</li> <li>- modern achievements in forest science;</li> <li>- methods to prevent erosion, preservation of the fertile layer, increasing the productive function of wood and non-wood forest products, improving tourism, recreation and recreation.</li> </ul> <p>The ability of undergraduates to manage the resource potential of the forest, to substantiate the basic agrotechnical methods of forest cultivation in forestry, the actions of plant protection products and other technologies</p>		
9.		PD	Environmental economics	5	4	<p>The main directions of state policy in the field of environmental protection and the use of natural resources, waste management, strategic measures for their implementation. Concepts of sustainable environmental and economic development, environmental and economic problems associated with changes in the state of the environment and the use of natural resources. Methods and principles of economic valuation of natural resources. Methods of calculating payments for the use of certain types of resources, calculation of environmental damage,</p>	<p>Have an idea of the main directions of state policy in the field of environmental protection and the use of natural resources, waste management.</p> <p>To know and understand: the concept of sustainable environmental and economic development; methods and principles of economic assessment of natural resources; features of environmental and resource policy in</p>	General ecology	Ecological, hygienic regulation and expertise in agriculture,



						economic result from investment activities. Features of environmental and resource policies in the Republic of Kazakhstan. The economic value of natural resources and services, the economic assessment of natural resources and environmental damage. Implementation of environmental measures taking into account economic effects. Methods of quantitative and qualitative assessment of natural resources. Planning measures for economic incentives for environmental protection	the Republic of Kazakhstan. Be able to: determine the economic assessment of natural resources and environmental damage; plan the implementation of environmental measures taking into account economic effects. To acquire practical skills: calculation of payments for the use of certain types of resources, calculation of environmental damage, environmental and economic analysis; planning of measures for economic incentives for environmental protection		Methods of processing and disposal of agricultural waste
10.		PD	Ecological tourism	5	5	The history and current state of ecotourism. Types of ecotourism. World regions and centers of ecological tourism. Europe. World regions and centers of ecological tourism. North America. World regions and centers of ecological tourism. Central and South America. World regions and centers of ecological tourism. Africa. World regions and centers of ecological tourism. Asia. World regions and centers of ecological tourism. Australia and Oceania. The development of ecotourism in Kazakhstan, as the most promising type of tourism in Kazakhstan. National parks and other protected areas of the Republic of Kazakhstan. The hospitality industry in the Republic of Kazakhstan. Ecotourism management: its features and formation. Tourism product advertising and marketing. Tourist product of the national parks of the Republic of Kazakhstan. World trends and prospects for the development of eco-tourism. Problems of development of ecological tourism in Kazakhstan. State regulation of tourist activity: concept and principles	Knowledge of the nature of ecotourism, understanding of modern concepts of ecotourism as a process, including the formation of an idea, its justification and design in the form of an ecological project; the acquisition of practical skills in organizing ecotourism in education and entrepreneurship. Be able to analyze key issues in modern eco-tourism	Plant and Animal Biodiversity, Plant Ecology, Environmental Education and World view	Research practice, Research work of a graduate student
11.		PD	Sustainable natural resource management	6	4	Ecological basis of sustainable development of the Republic of Kazakhstan. Regional features and effectiveness of the use of land, forest and water resources, mineral resources of the Republic of Kazakhstan. Economic efficiency of using natural resources of certain regions of the Republic of Kazakhstan. Features of their territorial combinations. Prospects for solving the main environmental and economic problems of the Republic of Kazakhstan. Waste-free, clean	To have an idea of the public administration system in the field of sustainable use of natural resources, the formation of an environmental policy that ensures the implementation of the Concept for the transition of the Republic of Kazakhstan to the "green economy" and compliance with the	Environmental economics, Climate Change and	Research practice, Master's research work

						and green technology.	principles of a scientifically sound combination of environmental, social and economic interests, as well as the socio-economic efficiency of using basic types of natural resources of the Republic of Kazakhstan. To know and understand the scientific basis for the rational use of natural resources. Be able to analyze the efficiency of use of natural resources; plan the use of non-waste, clean and green technologies, carry out environmental measures taking into account economic effects. To acquire practical skills in planning sustainable use of natural resources and solving the basic environmental and economic problems of the Republic of Kazakhstan.	the Green Economy	
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