1	Name of the educational program	**"Biological safety"**
2	Type of EP (current, new, innovative)	new
3	Purpose of the EP	Training of leaders and specialists of a new generation capable of comprehensively solving the problems of biological safety in the field of ensuring the sanitary and epidemiological well-being of the population at various biologically hazardous facilities
4	Features of the EP (none, joint, two-diploma)	No
5	Partner university	-
6	Learning Outcomes	**Upon successful completion of this program, the undergraduate will:** LO 1 - Ability to apply modern ideas about the basics of biotechnological and biomedical industries, genetic engineering, nano-biotechnology, molecular modeling; LO 2 - To master the requirements for the storage of biological materials, the conditions for their transportation and the destruction of pathogenic biological agents; LO 3 - Be able to recognize and investigate potential biological threats, organize the provision of biological security; LO 4 - Conduct monitoring and analysis of biological risks, including forecasting the risk of the spread of infectious diseases and especially dangerous infections in emergency situations; LO 5 - To carry out epidemiological surveillance of biological risks and threats in the field of a number of factors that determine the state of health and affect it ; LO 6 - Effectively use regulatory legal acts in the field of healthcare of the Republic of Kazakhstan on biological safety and biological protection; LO 7 - Apply international requirements and standards in the field of ensuring biological safety in key health sectors and other institutions (conduct sanitary and epidemiological control accordingly); LO 8 - Apply a set of anti-epidemic measures aimed at managing biological risks, preventing and containing biological threats.
7	Form of study	full-time
8	Language of instruction	Russian
9	Volume of credits	1 year, 60 credits
10	Awarded academic degree Master	Master of Health care
11	EP accreditation (name of the accreditation body, accreditation validity period)	-

	Name of disciplines	Brief content of the discipline	Component	Credits	Learning Outcomes							
					LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8
Cycle of basic disciplines (BD) - 6												
1	Foreign language (professional) IYa 1201	Deepening and development of skills and abilities for practical knowledge of colloquial and everyday speech and the language of the specialty for the active use of a foreign language both in everyday and in professional communication. Vocabulary. Grammar. Possession of oral speech. Writing skills. Listening. Translation.	UC (university component)	2							+	
2	Management Men 1202	Purpose: To acquaint undergraduates with the history of management development. Modern management. Health program management. Knowledge of standards for the provision of medical care and standards for the minimum equipment of equipment, the requirements of sanitary and epidemiological surveillance for the organization of medical care. Features of management in healthcare and corporate governance in the Republic of Kazakhstan. Gaining knowledge about leadership, managerial competencies and time management.	UC (university component)	2		+		+		+		+
3	Psychology of management PU 1203	Purpose: to promote the formation of undergraduates' ideas about modern management trends - a new managerial paradigm, helps to navigate the main sections of this discipline: the psychological content of managerial activity, the individual managerial concept of the head, the theoretical foundations of managerial interaction, the psychological features of the implementation of basic managerial functions, the psychology of the subject of managerial activity	UC (university component)	2		+						+

Elective component - 4												
4	Descriptive and analytical epidemiology OAE 1204	The discipline studies the methodology of assessing the prevalence of diseases, methodological techniques of descriptive and analytical studies, causes and conditions of biological risk, effects of exposure, with the identification of the strength of the connection and verification of the causality of the identified associations.	EC (elective component)	4	+		+		+			
4	Medical microbiology and modern methods of laboratory diagnostics MMSMLD 1205	In this discipline, the questions of morphology, physiology and genetics of microorganisms, etiology, pathogenesis, immunity, laboratory diagnostics, prevention and etiotropic therapy of the main bacterial, viral and fungal infections will be considered, information will be given about modern methods of diagnostics of pathogens, questions of the collection of microorganisms will be considered	EC (elective component)	4	+			+	+	+	+	
4	Methods of sanitary and bacteriological research MSBI 1206	The subject covers the issues of the quality of microbiological research, the principles of its organization with the identification of a dangerous factor and risk management.	EC (elective component)	4	+			+		+	+	
Cycle of major disciplines (BD) - 25 University component - 15												
5	Biological safety and labor protection BBOT 1307	Studies the basic principles of rationing and approaches to ensuring biological safety, the organization of a system of protection and risk management, the assessment of personnel competence and occupational safety.	UC (university component)	3		+	+	+			+	
6	Biological safety in diagnostic laboratories of medical organizations PRBBBZ 1308	The discipline studies the organization of biological safety when working with pathogenic biological agents in laboratories of medical organizations, the organization of control and protection measures.	UC (university component)	3	+				+			

7	Legal regulation of biological safety and biological protection BBDLMO 1309	The discipline studies the norms regulating the issues of ensuring biological safety of the Republic of Kazakhstan, as well as regulatory and technical documents of national and interstate standards of biosafety and biosecurity.	UC (university component)	3		+	+	+			+	
8	Epidemiology of especially dangerous infections EOOI 1310	The subject provides knowledge, skills and abilities to ensure the biosafety system and eliminate risk factors for particularly dangerous infections, the principles of organizing measures for quarantine infections and other emergency situations, including when working with pathogens in medical institutions, laboratories and in foci of particularly dangerous infections.	UC (university component)	3	+					+		
9	Internship PP 1311	Biosafety skills will be mastered in key health sectors and other institutions (accordingly, conducting sanitary and epidemiological control)	UC (university component)	3				+	+	+		
	Elective component - 10											
1 0	Environmental epidemiology and biological risk management EUBR 1312	The discipline provides the skills to assess the impact of negative environmental factors on human health, the methodology for predicting environmental risks in the spread of infectious diseases and especially dangerous infections, to monitor, analyze, control and manage biological risks with the organization of effective protection measures.	EC (elective component)	5	+		+				+	+
10	Biological safety and disinfection business BBDD 1313	The discipline provides knowledge about the principles of ensuring biological safety, to possess and apply methods of destroying pathogenic biological agents, to control the quality of disinfection, to organize rapid response measures to biological threats.	EC (elective component)	5	+					+		
10	Risk assessment for the environment, working	The basics of assessing and managing the risks of environmental factors on human	EC (elective component)	5	+		+				+	+

	environment and human health OROPSZCh 1314	health are studied, skills of mastering methodological approaches to hygienic rationing and biological risk assessment, quantitative and qualitative assessment, skills of monitoring and organizing data collection, analysis and management of biological risks, prevention and containment of biological threats are formed.										
10	Biological safety in microbiological laboratories of medical and pharmaceutical facilities BBMLMFO 1315	The discipline studies the organization of biological safety when working with pathogenic biological agents in microbiological laboratories of medical and pharmaceutical facilities. Develops skills in organizing complex control measures, accounting and compliance with security measures, protection of personnel and the environment.	EC (elective component)	5	+					+		
10	Safety of work with microorganisms of I-II pathogenicity groups BRMGP 1316	This discipline considers the requirements for organizational, sanitary and anti-epidemic (preventive), engineering and technical measures aimed at ensuring personal and public safety, protecting the environment when working with pathogenic biological agents of groups I-II: pathogenic microorganisms for humans (bacteria, viruses, rickettsia, chlamydia, fungi, prions), including genetically modified ones, poisons of biological origin (toxins), any objects and materials suspected of containing the listed agents.	EC (elective component)	5	+		+				+	+
10	Safety of work with microorganisms of III-IV groups of pathogenicity and causative agents of parasitic diseases BRMGPVPB 1317	This discipline considers the requirements for the organization of work with pathogenic biological agents of groups III-IV and the requirements for the procedure for eliminating accidents when working with pathogenic biological agents. In addition, issues of organizing control over the	EC (elective component)	5	+		+				+	+

		fulfillment of biological safety requirements and modes of disinfection by physical methods of various objects contaminated with pathogens of III-IV pathogenicity groups are being studied.										
10	Strategy and tactics for combating antibiotic resistance and hospital strains STBAGSh 1318	This discipline considers the problem of antibiotic resistance and the emergence of hospital strains and its relevance in modern medicine and in terms of biological safety, the most common multi-resistant microorganisms of the ESCAPE group will also be considered, antibiotic resistance monitoring systems in the Republic of Kazakhstan are listed, and ways to solve the current situation are given.	EC (elective component)	5	+				+	+		
10	Biotechnology of microorganisms BM 1319	This discipline considers knowledge related to the study of biological, physico-chemical, molecular-genetic properties of infectious agents of humans, domestic and wild animals, birds and plants, the development of means of diagnostics, prevention and treatment, as well as data of public health, epidemiology, phytopathology, statistics modeling, biosafety issues, genomics and rapid information on new outbreaks, which are considered important for the biosafety manager	EC (elective component)	5	+		+				+	+
10	Radioecology and biological risk management RUBR 1320	The discipline studies the impact of ionizing radiation and radioactive elements on the environment and its individual components (individuals, populations, communities, ecosystems), as well as the migration of radionuclides. Studies methods of radiation risk assessment, prevention measures and rationing approaches.	EC (elective component)	5	+			+		+		
10	Intralaboratory quality control of bacteriological studies	This discipline teaches the types of microbiological studies necessary for conducting in-laboratory quality control of	EC (elective component)	5		+		+	+			+

	VKKBI 1321	bacteriological laboratories, gives the skills to conduct in-laboratory control with hazard identification and risk assessment strategy selection; apply the principles of in-laboratory quality control in accordance with the requirements of the accuracy of analysis and the magnitude of deviations.										
10	Technogenic contamination with radionuclides TZR 1322	The discipline studies the impact of technogenic radionuclides on the environment and its individual components, the main patterns of migration of the most dangerous radionuclides through food chain , their toxicological characteristics and features of accumulation and excretion in different animal and human species, as well as an assessment of the risk of exposure to radionuclides on biological objects and pollution prevention measures.	EC (elective component)	5		+	+			+	+	
10	Principles of decontamination and disposal of laboratory waste PDULO 1323	The discipline studies the basic requirements of biosafety in the handling of contaminated waste, teaches the skills of organizing the processes of identification and segregation of contaminated materials, categorization of laboratory waste; comprehensively apply the basic requirements that ensure the control of biological risks.	EC (elective component)	5		+		+	+	+		
	Experimental research work **EIRM 1401**	Purpose: to apply the acquired knowledge in the development and writing of a master's project , methods of analysis and definition of goals, objectives of various projects.		13				+	+	+	+	+
	Final examination **IA**			12	+	+	+	+	+	+		
	Total			**60**								