

CATALOG OF ELECTIVE DISCIPLINES

For students in the field of study 6B084 Fisheries

Brief description of elective disciplines of the educational program

GOP	OP	Form of study	Name of discipline	Discipline code	Cycle of discipline	Component of choice	Amount of credits	Level of training	Department	Volume	Academic period	Prerequisites	Post-requisites	Summary of the discipline	Learning outcomes	Name of alternative discipline
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Fundamentals of Economics and Law	OEP 2125	OOD	Component of choice	5	Bachelor	Economy	2	4	Mathematics	Internship	The discipline promotes knowledge of the subject of economic theory and research methods, the foundations of social production and forms of social economy, the mechanism of functioning of the market system, production, costs and income of a company, and the national economy. To acquire knowledge about the fundamentals of the theory of state and law, the fundamentals of constitutional, administrative, civil, labor, family, and criminal law.	ON 1 - Possess the basics of economic knowledge, have scientific ideas about management, marketing, finance, master knowledge of the fundamentals of the theory of state and law.	Fundamentals of anti-corruption culture, Fundamentals of entrepreneurship
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Basics of Entrepreneurship	OPD 2124	OOD	Component of choice	5	Bachelor	Management	2	4	Mathematics	Industrial fishing farming	Entrepreneurship fundamentals subject. The concept of entrepreneurship under the legislation of the Republic of Kazakhstan. Property rights in the Republic of Kazakhstan. Legal status of legal entities. Property rights. Private enterprise. Individual entrepreneurship. Licensing of business activities. Legal regime of foreign investments. Legal liability for economic offenses. Business contracts.	ON 1 - Analyze the conditions for the development of production in a logical and quantitative manner, study innovative entrepreneurship	Fundamentals of Economics and Law, Fundamentals of Anti-Corruption Culture
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Fundamentals of anti-corruption culture	OAK 2123	OOD	Component of choice	5	Bachelor	Economy	2	4	Political Science and Sociology	Aquaculture	The course forms a system of knowledge on combating corruption, and on this basis developing a civic position in relation to this phenomenon. As a result of mastering the discipline, students will be able to: navigate the legislation; analyze and apply regulations in specific situations, follow moral and legal standards; express and justify your own point of view on issues of anti-corruption culture.	ON 1 - Analyze in a logical and quantitative manner the conditions for the development of production, study innovative entrepreneurship and anti-corruption culture, formulate inventions	Fundamentals of Economics and Law, Fundamentals of Entrepreneurship

B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	aquatic ecosystem	VE 3270	DB	Component of choice	5	Bachelor	Game management and fisheries	3	5	Hydrochemistry	Theory of formation of fish resources	The discipline studies the ecosystem of the aquatic environment in which communities of organisms that depend on each other live	ON 4 - Know the aquatic ecosystem.	Particular ichthyology
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Particular ichthyology	CHI 3267	DB	Component of choice	5	Bachelor	Game management and fisheries	3	5	Ichthyology	Pond fish farming, Industrial fish farming	The discipline examines the taxonomic characteristics of the ichthyofauna, the order of fish and determines their species. Studies their species characteristics, biology, phylogeny, taxonomic position, systematics, economic significance and role in nature	ON 2 - Know the types of vertebrate animals, their structure, distribution patterns, relationship with the environment. ON 3 - Know the life forms of hydrobionts, the systematic position of fish in the taxonomy of the animal world	aquatic ecosystem
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Microbiology and Virology	MV 2239	DB	Component of choice	4	Bachelor	Microbiology and biotechnology	1	1	Structure and systems of coastal aquatic plants	Ichthyology	Basic information about the place of prokaryotes and eukaryotes among living organisms, about the morphology, physiology and genetics of microorganisms, as well as about metabolism in the microbial cell. General characteristics of viruses. Use of microorganisms and their metabolites in the food industry. The influence of external factors on microorganisms. Mechanisms of metabolism in microorganisms. Conversion of nitrogen compounds by microorganisms	ON 4 - Study the structure, physiology, biochemistry of microorganisms, general characteristics of viruses.	Hydrochemistry
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Hydrochemistry	Gid 1216	DB	Component of choice	4	Bachelor	Physics and chemistry	1	1	School course on the subject of chemistry	Hydrobiology	The discipline studies the chemical composition of natural waters and the patterns of its changes under the influence of physical, chemical and biological influences, the establishment of general patterns of formation of the chemical composition of natural waters and the clarification of the genesis of various chemical types of waters in the earth's crust.	ON 4 - Know the patterns of interaction of aquatic organisms, ecological groups of aquatic organisms, features of natural waters, the hydrochemical composition of natural waters, patterns of its changes depending on chemical, physical and biological processes.	Microbiology and Virology
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Meteorology	Met 2241	DB	Component of choice	5	Bachelor	Agriculture and crop production	2	3	School course on the subjects physics, mathematics and geography	Fisheries, Theory of formation of fish stocks	The discipline studies instruments for meteorological observations, methods, characteristics and assessments of climate and weather conditions of the growing season, types and forms of meteorological information. Use of climate and weather information for programming.	ON 3 - Be able to use agroclimatic and agrometeorological information to conduct fish farming activities	Structure and taxonomy of coastal aquatic plants
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Structure and taxonomy of coastal aquatic plants	SSPVR 2236	DB	Component of choice	5	Bachelor	Biology, protection and quarantine of plants	2	3	School course on biology	Aquaculture, Pond fish farming	The discipline studies the external and internal structure of the vegetative and generative organs of aquatic and coastal plant species, the main systematic groups of plants in water basins.	ON 3 - Determine species diversity, taxonomy, and structure of coastal aquatic plants.	Meteorology

B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Ecology and life safety	EBZh 2209	DB	Component of choice	4	Bachelor	Ecology	2	3	Zoology	Aquaculture, Industrial fish farming	The discipline studies the patterns of interaction between organisms and their habitat, the laws of development and existence of biogeocenoses as complexes of interacting living and nonliving components in various parts of the biosphere, issues of preserving human health and life in the technosphere, protection from dangers of man-made and natural origin and creating comfortable living conditions.	ON 5 - Analyze methods to ensure favorable conditions, labor safety for workers and labor organization	Labor protection and basic life safety
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Labor protection and basic life safety	OTBZh 2238	DB	Component of choice	4	Bachelor	Agricultural machinery and technology	2	3	Zoology	Aquaculture, Industrial fish farming	The discipline helps students develop knowledge and practical skills to create safe living conditions, to prevent the causes and conditions of hazardous situations, to protect the population and production personnel and national economic facilities from the possible consequences of emergency situations. Supervision and control of the implementation of legislation and liability for violation of labor protection requirements.	ON 5 - Analyze methods to ensure favorable conditions, labor safety for workers and labor organization	Ecology and life safety
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Operation of closed water supply installations	EUZV 3271	DB	Component of choice	5	Bachelor	Hunting and fisheries	3	6	Ichthyology, Aquaculture	Industrial fish farming	The discipline studies the structure diagram of RAS components, the structural features of a biological, mechanical filter, the structural features of RAS depending on its purpose	ON 5 - Be able to use the most effective methods for raising fish in a RAS.	Bioproductivity of reservoirs
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Bioproductivity of reservoirs	BV 3272	DB	Component of choice	5	Bachelor	Hunting and fisheries	3	6	Hydrobiology	Feed and feeding of fish in aquaculture	The discipline studies the basics of the formation of production processes in a reservoir, autotrophic and heterotrophic nutrition, the influence of external factors on the rate and volume of productivity, anthropogenic impact on biotopes, methods for improving the ecological situation in a reservoir.	ON 5 - Possess knowledge of the basics of the formation of production processes in a reservoir, autotrophic and heterotrophic nutrition.	Operation of closed water supply installations
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Lake commercial fish farm	OTRH 3244	DB	Component of choice	5	Bachelor	Hunting and fisheries	3	5	Aquaculture	Internship	The discipline studies the fishery use of water bodies by completely or partially replacing the ichthyofauna in them through the capture of economically low-value fish, the introduction, cultivation and subsequent catching of valuable fish species in them	ON 6 - Know the breeding of valuable species in lake-commercial farms.	Fundamentals of scientific research in fisheries
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Fundamentals of scientific research in fisheries	ONIRH 3214	DB	Component of choice	5	Bachelor	Hunting and fisheries	3	5	Hydrobiology, Ichthyology	Internship	The discipline studies the goals and objectives of scientific research, methods of conducting hydrobiological, hydrochemical, ichthyological research.	ON 3 - Know the life forms of aquatic organisms, the systematic position of fish in the taxonomy of the animal world, morphology, ecology and anatomy of fish, fish biology	Lake commercial fish farm

B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Fundamentals of legislation in fisheries	BShNZ 4256	DB	Component of choice	5	Bachelor	Hunting and fisheries	4	7	Fundamentals of Economics and Law	Internship	The discipline studies the legislative framework used in fisheries; measures for the protection of aquatic biological resources; to combat poaching.	ON 6 - Know the legislative framework in the field of fisheries and conservation of aquatic biological resources	Protection of aquatic biological resources
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Protection of aquatic biological resources	OVB 4252	DB	Component of choice	5	Bachelor	Hunting and fisheries	4	7	Hydrobiology	Internship	The discipline studies measures for the protection of aquatic biological resources, types of aquatic organisms listed in the Red Book, factors influencing the number of aquatic biological resources.	ON 6 - Know the legislative framework in the field of fisheries and conservation of aquatic biological resources ON 7 - Assess the general principles of fisheries protection	Fundamentals of legislation in fisheries
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Fish farming	Sig 3261	DB	Component of choice	5	Bachelor	Hunting and fisheries	3	5	Aquaculture	Pond fish farming	The discipline studies the hatchery production of whitefish offspring, as well as the cultivation of high-quality planting material. Study of fish feeding standards	ON 7 - Have knowledge about the technology of whitefish farming ON 8 - Have an idea of modern technologies for artificial reproduction and cultivation of aquatic organisms, forms of intensive fish farming, industrial methods of fish farming. ON 9 - Know the objects of pond fish farming, types of pond farms, technology for keeping and growing carp, whitefish, salmon, catfish and other fish in pond farming conditions	Fish processing technology
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Fish processing technology	TPRP 3201	DB	Component of choice	5	Bachelor	Hunting and fisheries	3	5	Zoology, Ichthyology	Mariculture	The discipline studies techniques and methods for obtaining and processing raw materials, materials, and semi-finished products carried out in various industries.	ON 3 - Know the life forms of aquatic organisms, the systematic position of fish in the taxonomy of the animal world, morphology, ecology and anatomy of fish, fish biology ON 7 - Assess the chemical composition and nutritional value of fish meat, organoleptic, post-mortem changes in raw materials and the principles of their preservation, fish processing.	Fish farming
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Ichthyogeography	Iht 3243	DB	Component of choice	5	Bachelor	Hunting and fisheries	3	6	Ichthyology	Theory of formation of fish resources	The discipline studies the idea of the modern distribution of fish fauna, shows the causes and patterns of settlement and origin of ichthyogeographical complexes, and identifies the reasons for the differences between the ichthyofauna of the regions of the World Ocean and continental water bodies.	ON 6 - Know the legislative framework in the field of fishing and conservation of aquatic biological resources ON 7 - Know about the modern distribution of aquatic fauna and other animals.	Ethology of fish

B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Ethology of fish	ER 3229	DB	Component of choice	5	Bachelor	Hunting and fisheries	3	6	Ichthyology	Pond fish farming	The discipline studies the mechanisms of fish behavior and the possibility of using them in fishing and fish farming, the study of the reception organs of fish and the characteristics of their perception of physical fields, the reactions of fish to artificial and natural physical fields, as well as their use in fish farming.	ON 6 - Know the legislative framework in the field of fisheries and conservation of aquatic biological resources ON 7 - Have an understanding of the mechanisms of fish behavior, their reaction to natural and artificial physical stimuli.	Ichthyogeography
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Ornamental fish farming	DR 4228	DB	Component of choice	5	Bachelor	Hunting and fisheries	4	8	Ichthyology	Graduate work	The discipline studies the prospects for using aquarium farming as an applied branch of fisheries and technology for growing ornamental fish species.	ON 3 - Know the life forms of aquatic organisms, the systematic position of fish in the taxonomy of the animal world, morphology, ecology and anatomy of fish, fish biology ON 10 - Have certain knowledge about aquariums and technology for growing ornamental fish.	Sanitary hydrobiology
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Sanitary hydrobiology	SG 4268	DB	Component of choice	5	Bachelor	Hunting and fisheries	4	8	Hydrobiology	Graduate work	The discipline studies the pollution of water bodies, periodic mapping of water quality by physical, chemical and biological characteristics, studies of the ecology of aquatic organisms in clean water bodies, studies of the physiology and ecology of aquatic organisms, their changes under the influence of toxicants and wastewater.	ON 3 - Know the life forms of aquatic organisms, the systematic position of fish in the taxonomy of the animal world ON 10 - Have knowledge about the pollution of water bodies and periodic mapping of water quality according to physical, chemical and biological characteristics.	Ornamental fish farming
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Toxicology of water bodies	TV 4274	DB	Component of choice	5	Bachelor	Hunting and fisheries	4	7	Hydrobiology	Graduate work	The discipline studies the toxicity of the aquatic environment, the patterns of reactions of aquatic organisms of different systematic positions and different levels of organization to the toxic effects of the aquatic environment.	ON 7 - Know about the modern distribution of aquatic fauna and other animals. ON 10 - Know the toxicity of the aquatic environment, as well as the patterns of reactions of aquatic organisms of different systematic positions	Mariculture
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Mariculture	Mar 4273	DB	Component of choice	5	Bachelor	Hunting and fisheries	4	7	Aquaculture, Fish processing technology	Graduate work	The discipline studies the breeding and commercial cultivation of seaweeds, invertebrates, and fish under controlled conditions, including changing environmental parameters in order to create favorable conditions for cultivated	ON 7 - Know about the modern distribution of aquatic fauna and other animals. ON 10 - Know the cultivation and commercial cultivation of seaweeds, invertebrates, fish under controlled	Toxicology of water bodies
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Trout farming	For 4320	PD	Component of choice	5	Bachelor	Hunting and fisheries	4	7	Aquaculture	Graduate work	The discipline studies methods of obtaining reproductive products and further commercial cultivation of trout using artificial feeding	ON 7 - Know about the modern distribution of aquatic fauna and other animals. ON 8 - Have an idea of modern technologies for artificial reproduction and cultivation of aquatic organisms, forms of intensive fisheries, industrial methods of fish cultivation.	Pond fish farming

B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Pond fish farming	PR 4319	PD	Component of choice	5	Bachelor	Hunting and fisheries	4	7	Aquaculture	Graduate work	The discipline studies the breeding and cultivation of fish in ponds, types and categories of ponds, reclamation measures in pond farms	ON 7 - Have knowledge about the technology of whitefish farming ON 8 - Have an idea of modern technologies for artificial reproduction and cultivation of aquatic organisms, forms of intensive fish farming, industrial methods of fish farming. ON 9 - Know the objects of pond fish farming, types of pond farms, technology for keeping and growing carp, whitefish, salmon, catfish and other fish in pond farming conditions	Trout farming
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Sturgeon farming	Ose 4318	PD	Component of choice	6	Bachelor	Hunting and fisheries	4	8	Aquaculture	Graduate work	The discipline studies the technology of growing sturgeon fish in ponds, RAS, cages, obtaining viable juveniles, feeding groups of fish of different ages.	LO 7. Know about the modern distribution of the fauna of aquatic animals and other animals. RO 8. Have an idea of modern technologies for artificial reproduction and cultivation of aquatic organisms, forms of intensive fisheries, and industrial methods of growing fish.	Artificial fish reproduction
B080 - "Fisheries"	6B08401 - "Aquaculture and aquatic biological resources"	Full-time (bachelor 4 years) semester	Artificial fish reproduction	IVR 4316	PD	Component of choice	6	Bachelor	Hunting and fisheries	4	8	Aquaculture	Graduate work	The discipline studies the artificial reproduction of fish, raising young fish to viable stages of development and releasing them into reservoirs of fishery importance.	LO 7. Know about the modern distribution of the fauna of aquatic animals and other animals. Have knowledge about the technology of growing whitefish RO 8. Have an idea of modern technologies for artificial reproduction and cultivation of aquatic organisms, forms of intensive fish farming, and industrial methods of growing fish.	Sturgeon farming

The catalog of elective disciplines was approved by the protocol of the council of the faculty of LHDPS "26" december 2023 Protocol 5

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