# Program code and name: 050504- "Ecology"

Number		ECTS
of	Name of subject	credit
subjects		
	General subjects	
	The history of Azerbaijan	
	During the teaching of this subject, the knowledge about the history of Azerbaijan	
	should be summarized and grouped according to the historical space, historical	
	time, state, personality, economy and culture content lines and conveyed to the	
	young generation, to give students and young people deep knowledge about the	
1.	historical past of our Motherland, to form their historical thinking, to understand the	5
	events happening in the society, special attention should be paid to imparting	
	knowledge and skills such as inculcating the ability to evaluate objectively, the	
	ideology of statehood, the formation of feelings of respect for the past, confidence	
	in the future, and the upbringing of the spirit of patriotism in young people.	
	Business and academic communication in Azerbaijani language	
2	Within the framework of this subject, special attention should be paid to inculcating	4
_	students presentation, public speaking, academic and business writing skills in	•
	Business and academic communication in a foreign language	
3	Within the framework of this subject, special attention should be paid to giving students a	15
	writing, oral and written skills.	10
	Elective subjects (Elective subjects are determined by the higher education	
	institution. Depending on the specifics of the major, additions can be made to	
	elective subjects)	

Philosophy
This subject is the main stages of the creation and development of philosophy,
philosophical teaching about existence, concept of matter. Modern science about the
structure of matter, movement. Space and time, the main laws and categories of
dialectics, the problem of consciousness in philosophy, the philosophical meaning
of man, nature and society, cognition and its structure, scientific cognition and its
methods, creativity and intuition, ethics of science, specificity of social cognition.
Society is a self-developing system, the main spheres of social life. Philosophical
structure of economic life, social sphere of society, philosophical analysis of
political life, spiritual life of society, subjects and driving forces of historical
process, culture and civilization, personality and social values are analyzed and
studied

# Sociology

This subject considers social events and processes in the context of society as a whole social system, analyzes and studies the structure, subject, methodology, characteristics of sociology, theoretical levels of modern sociological knowledge, as well as the variety of special sociological concepts. It studies possible perspectives of scientific research in this field.

# Constitution of the Republic of Azerbaijan and fundamentals of law

Constitution of the Republic of Azerbaijan, constitutional status of the state of Azerbaijan, citizenship of the Republic of Azerbaijan, human and civil rights, freedoms and duties, state power, division of power based on the Constitution, legislative power, executive power and its bodies, judicial power, its structure and system, fundamentals of labor law, basics of civil law, basics of family law, basics of criminal law.

## Logic

**4.1** The subject of logic helps a person to objectively assess opportunities, make quick and correct decisions, express ideas clearly, convince the interlocutor using correct arguments, and stay away from uncertain situations. This subject evaluates the ability to think logically, measures the ability to perceive and apply logical patterns, and allows you to learn how rich the knowledge base is in various fields.

## Ethics and aesthetics

Information about Ethical thought in this subject, the main stages of its evolution: ethical thought in ancient India and China, ethical thought in antiquity, medieval and new ethical thought. Information about ethical thought in Azerbaijan, Islamic ethics, the essence and main functions of morality, morality and other forms of social consciousness, moral consciousness and action, the main categories of ethics: good and evil, duty and conscience, honor and dignity, happiness and the meaning 3

of life, applied ethics and profession ethics is provided. **Introduction to Multiculturalism** The essence and importance of the subject of multiculturalism, the traditions of various minority peoples living in Azerbaijan, the effects of multiculturalism on socioeconomic development, the effects of multiculturalism on foreign policy, analyzing multiculturalism as a state policy of the Republic of Azerbaijan, comparative analysis of Azerbaijani multiculturalism and world examples of multiculturalism. Application of information technologies in ecology The purpose of the subject "Application of information technologies in ecology" is the formation of the worldview, relevant knowledge and skills about ICT, its fields of application, the application of ICT in the field of ecology. The results to be achieved: Formation of ideas about information technologies, their fields of application, application in the field of ecology; Forming ideas about the main and peripheral devices of the computer, their purpose; Forming ideas about computer software; Formation of ideas about the Windows operating system and the ability to 3 use it; formation of ideas about MS Word and the ability to use it; Forming ideas about the Power Point electronic presentation program and the ability to use it; formation of ideas about MS Excel spreadsheet and the ability to use it; Formation of ideas about computer networks and the ability to use them; Formation of the ability to use information technologies that are more commonly used in the fields of education and ecology.

#### Information management and database creation

All automated management and information search systems operate on the basis of a certain information database, and its effective operation primarily depends on the optimal organization of the database structure and its rational location in the network.

A database is a collection of information in the form of a structure, which is interconnected according to certain characteristics, described by the same principles and means, stored and managed. In other words, a database whose structure corresponds to a specific scheme is called a database. This is the definition of a database in terms of a data model.

This aggregation of data has the following characteristics:

• Sufficient amount of information;

- Ability to save data maximally compactly;
- Different from the database for a certain subject area access to information;

• The information taken from the database has a type and form convenient for the user;

- Data acquisition at high speed;
- Reliable protection of information and the possibility of authorized access to data by individual users;
- Convenience and simplicity of organization of requests, forms and reports for selection of data by users.

Database creation, protection, and the ability of users to obtain data are carried out with the help of a special software tool - database management systems (DBMS).

#### Fundamentals of Entrepreneurship and Introduction to Business

Entrepreneurial environment and competition, small and medium entrepreneurship, taxation in entrepreneurial activity, price policy, management and marketing system. Organizational-legal forms of business. SWOT analysis, external and internal environment of entrepreneurship. Commercial, financial, consulting, production entrepreneurship. Accounting, redistribution, stimulator, balancer and production placement

	Political science	
	Political science is the science of politics. The main stages of the development of	of
	political thought. Development stages of Azerbaijan's political opinion. Politics i	S
	the regulatory, organizing and controlling function of society. Political power an	d
	its bearers. Political elite. Political system theory. Political regimes. Political partie	s
	and party systems. Democracy: basic institutions. Parliament is the main democrati	c
	institution. Electoral systems. The state is the main political institution. Political	ıl
	consciousness and political ideology. Political culture. Civil society. Theory c	of
	world politics and international political relations. The concept of modernization a	.s
	a theoretical model of political development. Political technologies. Political studie	s
	and political analysis. Making political decisions. Political science of international	ıl
	relations. Global problems of international politics. Foreign policy activity of th	e
	state.	
Total:		30
	Specialization subjects	
	Chemistry	
	Within the framework of this subject, special attention should be paid to	
5	inculcating of students' ability to determine the composition, structure and	6
c	properties of chemical substances, the influence of various factors on chemical	Ū
	transformations.	
	Biology	
	Within the scope of this subject, special attention should be paid to inculcating	
6	the ability of students to understand the relationship between biology and other	6
	sciences, the cellular structure of living organisms and the physicochemical	
	processes occurring in them.	
	Higher mathematics	
-	Within this subject, special attention should be paid to inculcating the ability to	-
1	determine the mathematical calculation of the results obtained as a result of	1
	ecological research, the statistical processing of research results by students	
	Biosphere and its protection	
	Within the framework of this subject, special attention should be paid to	
8	inculcating the ability of students to determine living, biogenic and biocosm	
o	substances, the interaction of living organisms with the components of the	-
	biosphere.	6

9	PhysicsWithin the framework of this subject, special attention should be paid to inculcating the ability of students to determine the phenomena occurring inside physical bodies or with their participation from a physical point of view.	4
10	Basics of earth sciencesWithin the framework of this subject, special attention should be paid to inculcating the ability of students to determine the formation, composition, structure, movements, history of its development, the origin of minerals, and the laws of their location.	6
11	General ecology Within the framework of this subject, special attention should be paid to instilling in students the importance of the organization of the living system at the level of the organism, the complexity of the interactions between living and non-living nature, and the understanding of the place of man in ecological systems and the entire biosphere.	5
12	Geographical ecology Within the framework of this subject, special attention should be paid to inculcating the ability to determine the function, dynamics, geochemical and geophysical properties of ecosystems.	4
13	Animal ecology Within the framework of this subject, special attention should be paid to inculcating the ability of students to determine the morphological, physiological, ethological, etc. characteristics of organisms depending on their adaptation to various conditions.	5
14	Soil science In the framework of this subject, special attention should be paid to inculcating the ability of students to determine the interaction with the environment that determines the formation and development of fertility, which is the main property of the soil.	4
15	Ecological research methods         Within the framework of this subject, special attention should be paid to inculcating the skills of classical methods, instrumental methods, devices used for analysis, the importance and application areas of chemical analysis.	5
16	Landscape science and landscape ecology         Within the framework of this subject, special attention should be paid to instilling         the ability of students to determine the types of landscapes, their dynamics, and         the regularities of their evolutionary stages.	5

17	Human ecology and sustainable development Within the scope of this subject, special attention should be paid to inculcating the ability of students to identify the main ecological issues of human- environment interaction, the possibilities and perspectives of sustainable development of nature and society, and the main problems of the transition to sustainable development	5
18	Air and water quality, pollution and protection Within the framework of this subject, special attention should be paid to students' ability to identify chemical reactions in the atmosphere, gas content of natural waters, aerobic and anaerobic processes in natural waters, and the problem of drinking water.	6
19	<b>Ecology Law</b> Within the framework of this subject, special attention should be paid to inculcating the ability of students to determine the legal norms of the Republic of Azerbaijan on environmental protection, legal and non-legal forms of environmental protection.	4
20	<b>Ecological cartography and geographic information systems</b> Within the framework of this subject, special attention should be paid to inculcating the skills of determining the capabilities of the geographic information system in the complex study of the environment.	8
21	<b>Industrial ecology</b> Within the framework of this subject, special attention should be paid to inculcating the ability of students to determine the basic methods of rational use of nature and environmental protection, the principles of organizing waste-free and resource-saving production	4
22	<b>Environmental chemistry</b> Within the framework of this subject, special attention should be paid to students' ability to identify the main groups of pollutants, their migration, transformation and accumulation in ecosystems, and the characteristics of the effects of various types of pollutants on organisms, biocenosis and the human body.	6
23	<b>Forestry</b> Within the framework of this subject, special attention should be paid to inculcating the ability of students to determine the place of forest ecosystems in the formation of the ecological environment and the scientific basis of	6

24	<b>Environmental monitoring</b> In the framework of this subject, special attention should be paid to inculcating the skills of students to determine the features of monitoring the biodiversity of plants and animals in nature, methods and methods of ecoanalytical control.	5
25	<b>Conservation of biodiversity</b> Within the framework of this subject, special attention should be paid to inculcating the skills of determining the functions and value of biological diversity, the levels of biodiversity, and modern directions of biodiversity assessment and protection.	6
26	Sustainable management of natural resources Within the framework of this subject, special attention should be paid to inculcating the ability of students to determine the basis of efficient use of natural resources and its protection, and the ecological-legal regime of natural resource	4
27	<b>Civil defense</b> Within the framework of this subject, information should be provided on the basics, forces and means of civil defense, emergency situations and their characteristics, protection of the population in emergency situations, education of the population on civil defense, ways to eliminate the consequences of emergency situations, use of individual and collective protection means, industrial facilities in emergency situations. information on the basis and assessment of the sustainability of its work	3
Total:		120

28	Subjects determined by the institution of higher education Geography of Azerbaijan The main goal of the course is to enable students to have in-depth knowledge about the economic and social conditions of Azerbaijan at the expert level. For this purpose, it is intended to teach students about the impact of Azerbaijan's natural conditions and natural resources on economic development, the population of Azerbaijan, its migration, social and national composition, and separate areas of the economy and economic system.	3
28		

	<b>Man-made systems</b> The purpose of this subject is to form students' understanding of the main threats created by man-made systems, to inculcate the consequences of man-made systems on health, human life, and the material sphere, to reduce the potential of accidents (damage), modern industrial facilities and rational preparation for measures in emergency situations, quantitative assessment of man-made and environmental risk, teaching methods of analysis as a whole. To teach how to apply the acquired knowledge in solving professional problems.	
29	Ecological analysis The purpose of studying the subject is to create an idea about the basic regularity of ecosystem and biosphere activity, to correctly assess the state of the environment and the use of natural resources, to determine the basic principles of the strategy of environmental protection from pollution, to create an idea about the methods of controlling the state of the environment and the responsibility of citizens for environmental violations. Also, another important goal in the teaching of this subject is the mastering of experimental methods in the development of specific nature protection measures by students and the assessment of the impact of man-made objects on the environment.	4
	Sustainable development, as well as harmonious development, is a process of economic and social change in which resources, investment directions, the direction of scientific and technological development, personal development and institutional changes are interconnected, strengthening the present and the future. In many ways, it teaches people how to ensure the quality of life.	
30	<b>Demography and ecology</b> The goal of teaching the subject is to make students determine the general regularities of the influence of environmental factors on human geography, as well as their complex impact on people. Also, developing population theory and population policy is considered one of the main goals and tasks. It studies the perspective of changes in the population of the country, city, province, region and the Earth as a whole and studies settlement accordingly.	
	<b>Geology</b> Geology is a branch of natural science that deals with the rocks of the Earth and other astronomical objects, and studies the processes by which they change over time. Geology describes the structure of the Earth on and below the surface and the processes that shape this structure. Geologists study the mineralogical composition of rocks to learn their history of formation. Geology determines the relative ages of rocks found in a particular location; geochemistry (a branch of geology) determines their absolute age.	3

31	<ul> <li>Analytical chemistry         Since the content of this subject is the science of research methods, students should learn to develop analytical methods, determine their practical implementation, and create the theoretical foundations of these methods.     </li> <li>Basics of agrochemistry         Agrochemistry is the science of chemical compositions and changes involved in the production, conservation and utilization of plants and livestock. The purpose of agrochemistry is to manage and understand the processes by which people obtain food and fiber for themselves and forage for their animals; it includes all life processes that obtain food and fiber for humans and their animals, and the control of these processes to increase productivity, improve quality and reduce costs     </li> </ul>	4
32	Business English Within the scope of this subject, special attention should be paid to giving presentations to students in one of the foreign languages of their specialization, oratory, academic and business writing, oral and written skills.	3
	<b>Ecology and safety of life activity</b> The purpose of studying the subject is to teach students how to protect the environment, constantly protect the health of employees, create conditions for the safety of the work to be performed, to act in emergency situations in times of peace and war, and to teach the methods of ensuring the stable operation of objects in accordance with the specialty they received in secondary schools. It is necessary to accurately determine the danger, the types and characteristics of dangerous situations for the population, its property and the natural environment. To master the basics of medical knowledge and to be able to provide practical medical assistance in emergency situations.	
33	<b>Environmental activity management</b> Environmental management explains the provision of comprehensive protection of the environment based on the combination of ecological and economic interests of enterprises with scientific basis. The basis of the subject is the efficient use of natural resources and compliance with the normative loads allowed for nature. Environmental management teaches the efficient use and reproduction of natural resources of the state, the organization of environmental protection, as well as ensuring the rule of law in environmental and economic relations.	4
	<b>Hydrology</b> Hydrology - The scientific study of the movement, distribution, and management of water on Earth and other planets, including the water cycle. Hydrology is divided into surface water hydrology, groundwater hydrology (hydrogeology) and marine hydrology. Areas of hydrology include hydrometeorology, surface hydrology, hydrogeology, drainage basin management, and water quality. Oceanography and meteorology are not included, as water is only one of many important aspects within these fields. Hydrological research informs environmental engineering, policy and planning.	

34	<ul> <li>Social ecology</li> <li>The study of social ecology is understood as the specific relationships between human society and the environment, the influence of nature and society factors on people under the influence of the environment, or the influence of people on the environment. Special attention should be paid to the study of the subject of social ecology in modern societies, their general effects, their effects on people - family, neighbors and various relationships. All this creates an appropriate basis for the process of integrating students with modern scientific knowledge at the global level. Students also learn about human impacts on natural ecosystems and how to identify and prevent their negative consequences.</li> <li>Ecological features of the biosphere</li> <li>As a result of the rapid increase of anthropogenic changes in the environment in the last ten years, attention to global ecological issues of the biosphere, whose object is a huge super ecosystem, has increased significantly. In the works of V. I. Vernadsky, who created the doctrine of the biosphere, a single system whose development is determined mainly by the activity of living organisms appears, and Vernadsky noted the idea that the biosphere gradually changes to a new state with the creation of man, and is transformed by human activity. The structure of the biosphere is the main spectrum of issues considered within the framework of the main global problems or the Caucasus region are one of the leading areas in Asia and Europe. Analyzing and monitoring all environmental, geographical, geopolitical processes occurring in the region, investigating conflicts and their consequences, and determining future processes should be conveyed to students. In the history of the development of society, the place of natural conditions is the place of geographical, biological, geochemical, that is, processes in the environment and society is one of the einplace.</li> </ul>	7
35	<b>Environmental standardization, audit and certification</b> The main purpose of the subject is the material, technical, economic and ecological basis of nature use, the environmental policy of the Republic of Azerbaijan, its priority directions and principles, the task of environmental audit, management of nature use. Organization of environmental audit, norms of environmental audit, main purpose of environmental audit, environmental audit procedures, advantages of environmental audit, environmental standardization. The international environmental standards system mainly consists of IIACCP, ISO, SA and OI IS AS systems, providing students with fundamental knowledge about environmental insurance. At the same time, one of the main goals in the study of the subject is the study of Azerbaijan's renewable energy reserves and its efficiency, "State Program on the use of alternative and renewable energy sources in the Depublic of Azerbaijan" and other information	4

	<b>Basics of econometrics</b> Econometrics is a science that studies quantitative and qualitative economic relationships using statistical and other mathematical methods and models. The modern definition of the discipline of econometrics was developed using statistics and mathematics as the main objectives for the development of economic theory in the charter of the Econometric Society. Theoretical econometrics deals with the statistical properties of estimates and tests, while applied econometrics deals with the application of econometric methods to evaluate economic theories. Econometrics provides tools for economic measurements, as well as methodology for estimating the parameters of micro- and macroeconomic models. In addition, econometrics are actively used to predict economic processes both at the scale of the economy as a whole and at the level of individual enterprises. At the same time, econometrics is a part of economic theory along with macroeconomics and microeconomics.	
36	<b>Household ecology</b> The goal of studying the subject - household ecology, environmental culture, finding ways to create an ecologically clean environment and developing this field. It is a stage and is a theoretical and practical set of actions to be taken in the ecological direction, certain works. Our household cannot be imagined without discarded items and garbage, there is an environmental problem in every place of residence, where there is human activity, and this problem always starts with household waste. Therefore, it is one of the most important issues in terms of environmental protection and the formation of ecological culture.	
	<b>Geoecology</b> Geoecology - science studies the relationship between the processes occurring inside and outside the earth and the living world, from the point of view of creating a favorable condition (environment) for living the living world. The discipline of geoecology is emerging at the border of geology and ecology. Geoecology is the science of the conditions in which the living world lives, the mutual relationship between them, the change of these conditions due to the changes in the geological environment, the change of the geological environment due to the influence of the living entity, that is, the mutual relationship between the living entity and the geological environment.	4
37	Applied ecology The purpose of teaching the subject is to show students the direct application of the laws and principles of ecology during the efficient use of natural resources and environmental protection. The "Applied Ecology" course aims to familiarize the students with the content of this educational course by theoretically and practically preparing them, to study nature in a complex way, and to scientifically help to eliminate the complications caused by the influence of environmental factors on vital processes. The seminar sessions are dedicated to the application of the theoretical knowledge gained during the lectures to practical issues, and at this time, the causes of environmental problems are investigated.	3

	<b>Environmental expertise, insurance and licensing</b> The purpose of this subject is to detect, prevent and predict the possible negative impact of economic activity on the environment and their associated consequences, as well as to determine the compliance of the environment with quality standards and environmental requirements. At the stage of economic, management and other decision-making, environmental expertise is a legal means of accounting and implementation of environmental requirements.	
38	<ul> <li>Environmental safety and risks         The purpose of teaching the subject is to provide general information about environmental safety, natural disasters, their occurrence, consequences, forecasting, protection of the biosphere from pollution, the role of human activity in the biosphere, the impact of meteorological conditions on the human body, emergency situations during war, sources of global environmental threats, ensuring environmental safety in our republic. and so on. Every state, including Azerbaijan, pays special attention to environmental protection. One of the main goals of this subject is to inform students that it is important to carry out the tasks defined in the legislation related to environmental safety.     </li> <li>Environmental management         "Environmental management" studies the set of methods of managing various natural resources and solving environmental problems. Environmental management methods based on increasing the level of environmental safety in the area of use and production process, saving resources and reducing environmental risk, allow companies to gain opportunities in the field of economic profit, acquire new ecological bases, and increase their competitiveness based on this. Ecological management is the management of nature itself by maintaining biological diversity and abundance of natural resources. Elaboration of ecological goals, details corresponding to their strategy, program and structure, as well as control of achieving a certain result in practice are included in the methods of environmental management. These methods apply to all management levels, various organizations, small and large enterprises, their departments, regions, transnational corporations, etc. At the same time, the main environmental well-being of current and future generations depends on these conditions. Therefore, one of the central places in textbooks is occupied by corporate environmental management.</li></ul>	5

39	<b>Environmental problems of Azerbaijan.</b> In the content of the subject, the territorial structural features of Azerbaijan's nature, economy, population, relations and contradictions between them are discussed, and at the same time, the connection with planetary, regional, etc. ecosystems of our country is explained in detail. The main goal in teaching the subject of environmental problems of Azerbaijan is to investigate and analyze the problems arising in the country related to natural, economic and social processes and to determine the ways to eliminate them. At present, in connection with anthropogenic activities, natural ecosystems, including soil, water, biological resources, atmospheric air, have been seriously affected and created numerous, diverse problems in our country.	5
	<b>Ecology and health</b> The purpose of the subject: to form a systematic ecological-geographical system, to provide a comprehensive approach to the analysis of human and environmental interaction problems. The subject introduces students to the main factors and learns about environmental risk processes for human health, natural and anthropogenic factors and their role in the formation of public health. During the educational process, students acquire the skills of anthropoecological analysis of the area, medical and ecological mapping, and preparation of medical and ecological passports. The result of mastering the course is to understand the characteristics of the main environmental risk factors and processes for human health, assessment of the contribution of natural and anthropogenic factors to the health of the population, medical-ecological monitoring of the territory and medical-ecological certification.	
	<b>Biogeography</b> The main goal of this subject is to explain the relationship between biogeography, ecology and biology on scientific grounds. In science, there are barrier disciplines that connect biochemistry-biology with chemistry, biophysics-biology with physics. Since biogeography mainly studies the groups and geographical distribution of organisms, it is formed by the union of two main fields of science - geography (geographical distribution) and biology (distribution of organisms).	
	<b>Technological and environmental bases of production</b> In-depth study of production technologies can be considered one of the important factors in decision-making for both marketers and managers in the management and planning process of enterprises. When studying the subject "Technological bases of production", the main focus is on learning the technologies of advanced industries, machine-building, petroleum-chemical fields, agriculture, light industry and other fields and mastering their working principles.	6

	Climatology and meteorology	
40	Subjects of meteorology and climatology: Meteorology deals with the study of the atmosphere, its composition and structure, and the physical and chemical processes occurring in it. Climatology is a branch of meteorology that studies the regularities of the formation of climates, their distribution on the Earth, their changes in the past and in the future. Objectives of the subject: The goal of meteorology is to study the state of the atmosphere at the present physical time and to forecast its future state, and Climatology, as a part of it, studies the regularities of the formation of climates, their distribution on the Earth, their changes in the past and in the future.	
	<b>Use of nature's economy</b> Management of nature use and environmental protection is a set of measures implemented by competent authorities aimed at fulfilling the requirements of environmental legislation. Management in this area is designed to ensure the implementation of environmental legislation.	
41	<ul> <li>Methods of assessing the ecological state of the environment</li> <li>The purpose of learning the methods of assessing the state of the environment is the formation of field and conducting skills of environmental students. Laboratory methods of studying the environment and its components; assessment of environmental conditions of environmental objects; control over environmental pollution; predicting changes in ecosystems; methods of environmental monitoring and control; environmental quality assessment; modeling techniques and ecological predictions belong here.</li> <li>Land structure and cadastre</li> <li>The purpose of teaching the subject: the modern education about land is explained, the scientific-methodical basis of the effective use of land resources and their protection is given, an excursion is made to the history of the formation of land relations in Azerbaijan, and the prospects for the development of these relations are determined. Here, the theoretical aspects of land construction science are studied, the type and forms of modern land construction are explained, the land</li> </ul>	5
	construction system in Azerbaijan, its goals and tasks are explained, foreign models of the land construction system are studied.	