Information on the integration of Sustainable Development Goals (SDGs) into the educational programmes of the Faculty of Geography and Environmental Management

The Faculty of Geography and Environmental Sciences systematically and consistently integrates the Sustainable Development Goals (SDGs) into its educational programmes, syllabuses and curricula.

The Faculty of Geography and Environmental Sciences trains specialists in areas directly related to sustainable regional development, rational environmental management, environmental safety, climate change, tourism, and socio-economic development of regions. In this regard, the principles and goals of sustainable development are systematically integrated into the content of bachelor's, master's and doctoral programmes.

SDGs are integrated through:

- incorporating sustainable development principles into the objectives and expected learning outcomes of disciplines;ë
- studying SDGs in lectures and practical classes;
- carrying out project, analytical and research work focused on solving sustainable development problems;
- using case studies related to the environmental, social and economic aspects of regional development;
- preparing coursework, final qualification papers and dissertations on SDG topics.

The SDG disciplines are reflected in the syllabi in the following sections:

- discipline objective;
- expected learning outcomes;
- topics covered in classes;
- assignments for independent study.

List of subjects with elements of SDG integration:

Bachelor's degree:

№	**Name of discipline**	The aim of the discipline	Name of educational programme, course	Sustainable Development Goals (SDGs)	SDG integration form
1	Soil geography with the basics of soil science	The aim of the discipline is to develop an understanding of soil geography, its structure, composition and properties, formation and development processes, patterns of geographical distribution, and interactions with the external environment.	6B05205-Geography, 1st year	SDG 15	Lectures and seminars, Wednesday-Friday.
2	Population geography with the basics of demography	The aim of the course is to develop the ability to analyse social and demographic problems of the world's population.	6B05205-Geography, 3rd year	SDG 4, SDG 5,	Lectures and seminars, SRD.
3	Urban Geography	The aim of the course is to give students an understanding of the spatial and functional aspects of cities, as well as the factors that	6B05205-Geography, 3rd year	SDG 11	Lectures and seminars, Wednesday, Thursday, Friday.

		influence their development and planning.			
4	Geography of agricultural development: global trends, regional contrasts	The aim of the course is to develop the ability to form a systematic understanding of the geography of the world's agro-industrial sector and to comprehend the factors that determine it.	6B05205-Geography, 3rd year	SDG 12	Lectures and seminars, Wednesday, Thursday, Friday.
5	Global and regional problems of interaction between nature and society	The aim of the course is to develop the ability to understand the ecological worldview of the interaction between nature and society at the global and regional levels.	6B05205-Geography, 4th year	SDG 17	Lectures and seminars, Wednesday, Thursday, Friday.
6	Regional Management and Sustainable Development of the Republic of Kazakhstan	The aim of the discipline is to develop the ability to understand the theoretical and methodological foundations of regional policy, the role of regional policy in improving the territorial organisation of society and in	6B05205-Geography, 4th year	SDG 17	Lectures and seminars, SRD.

		realising its interests.			
7	Fundamentals of Agricultural Production	The aim of the course is to prepare students for production and technological activities at the stage of transforming design studies into real objects, structures and events, and to develop skills in the design of agricultural production, production and organisation of agricultural work.	6B07303 - Land Management, 3rd year	SDG 12	Lectures and seminars, SRD.
8	Economics and organisation of agricultural production	The aim of the course is to examine general scientific and theoretical principles and practical directions for the development of the economy and rational organisation of agricultural production at agribusiness enterprises and their divisions, taking into account technical, technological, social and other factors.	6B07303 - Land Management, 3rd year	SDG 12	Lectures and seminars, Wednesday-Friday.

9	Tourism Country Studies	The aim is to develop a comprehensive understanding of the geography of the world's leading countries that determine current trends in international tourism development, to form a comprehensive understanding of these countries that attract and retain tourists, and to learn methods and technologies for working with specialised information for the development of tourism in the world's leading countries.	6B11101 - Tourism, 1st year	SDG 11	Integration into lecture topics. Defence of presentations and projects on countries.
10	The food industry in tourism	The aim is to develop the ability to use knowledge of the characteristics of the food industry in tourism, its forms and methods for organising meals for tourists when developing a tourism product.	6B11101 - Tourism, 2nd year	SDG 2, SDG 12	Practical classes and case studies. Study of international food quality and safety standards (HACCP, ISO).

11	Ecological tourism	The aim is to develop the ability to raise the level of environmental awareness; to supplement basic environmental knowledge; to develop the ability to assess the possible consequences of eco-tourism on natural processes; to ly apply these abilities in professional activities.	6B11101 - Tourism, 3rd year	SDG 16, SDG 17	Independent work by students (IWS). Development of an ecotourism product project taking into account the principles of sustainability. Analysis of local community participation in ecotourism initiatives.
12	Service culture in hospitality	The aim is to develop skills for the development of a service culture in hospitality enterprises and its psychological, ethical, aesthetic, production, technological and organisational aspects.	6B11103 - Restaurant and hotel business	SDG 5, SDG 8	Practical classes and case studies. Cases of inclusive service for people with special needs. Analysis of conflict situations taking into account the principles of service ethics.
13	Ecology and sustainable development	The aim is to develop students' ecological worldview, scientific understanding of the relationship between nature and society, and comprehensive understanding of the	6B05202 - Ecology	SDG 6, SDG 7, SDG 13, SDG 11, SDG 15	Lectures and seminars,

		goals and principles of sustainable development. The course covers global and regional environmental issues, environmental protection and ways to use natural resources rationally.			
14	Human and Urban Ecology	The aim of the discipline is to form a comprehensive understanding of the relationship between the surrounding social and natural environment and humans and human society, the optimisation of the human environment, and trends in human biological and social life.	6B05202 - Ecology	SDG 13, SDG 11	Lectures and seminars: to assess the role of cities in the organisation of space, their structure and development dynamics, and environmental problems in the urban environment.
15	Atmospheric air protection	The aim of the discipline is to develop the ability to develop and implement measures to protect atmospheric air from harmful emissions from industrial enterprises.	6B05202 - Ecology	SDG 12, SDG 13	Lectures and seminars

16	River systems and global environmental change	The aim of the course is to familiarise students with the factors influencing global processes on river systems and ways to solve problems.	6B05203-Hydrologists	SDG 6, SDG 13, SDG 14	Lectures and practical classes
17	Hydroecology	The aim of the discipline is to develop the ability to study the relationship between water systems and the environment ( ) based on the application of methods and technologies for preserving and improving the quality of water resources and their ecosystems.	6B05203-Hydrologists	SDG 6, SDG 13, SDG 14	Lectures and practical classes
18	Hydrodynamic processes of the Caspian Sea	Familiarisation with the tasks and stages of development of long-term and interannual fluctuations in the level of the Caspian Sea, calculating average annual water levels in the Caspian Sea based on observational data, constructing and analysing a difference-integral	6B05203-Hydrologists	SDG 6, SDG 13, SDG 14	Lectures and practical classes

		curve of average annual sea levels, familiarisation with the basic principles of the MIKE 21 hydrodynamic model and the SWAN wave spectral model.			
19	Climate of Kazakhstan	To provide students with systematic knowledge about climatic conditions and climate-forming factors in the territory of the Republic of Kazakhstan, the characteristics of spatial and temporal climate variability, current climate trends and their impact on natural systems and the socio-economic development of the country.	6B05204-Meteorology	SDG 13, SDG 14	Lectures and seminars
20	Monitoring the state of the atmosphere	Developing students' theoretical knowledge and practical skills in the field of observation, analysis and assessment of the state of the atmosphere, mastering methods of monitoring	6B05204-Meteorology	SDG 13, SDG 14	Lectures and seminars

		atmospheric processes and air pollution, as well as using the data obtained to assess environmental risks and make management decisions.			
21	Environmental safety	To develop the ability to analyse the legislative framework and activities in the field of environmental safety, including radiation, chemical, biological and food safety at the international and national levels as a system of measures to protect natural systems, public interests and individual rights from threats arising from anthropogenic and natural impacts on the environment.	6B05202 - Ecology, 3rd year	SDGs 2, 3, 6, 7, 9, 11, 12, 13, 14, 15, 17	Lectures and seminars, SRC
22	Environmental standardisation and certification	The aim of the course is to develop the ability to develop a programme and environmental policy for an enterprise, analyse and apply standards in the field of	6B05202 - Ecology, 4th year	SDGs 7, 9, 12, 17	Lectures and seminars, SRC

		environmental protection, and evaluate the certification of environmental management systems.			

Master's programme:

№	Name of discipline	Purpose of the discipline	Name of educational programme, course	Sustainable Development Goals (SDGs)	Form of SDG integration
1	Digital technologies in geography education	The aim of the discipline is to develop the ability to use digital technologies in geography education and methods for developing hardware and software in the field of education.	7M01505-Geography, 1st year	SDG 4	Lectures and seminars, SRD.
2	Spatial analysis of human capital	The aim of the course is to study the theoretical foundations of the formation and development of human capital, as well as geoinformation methods for assessing and	7M05203-Geography, 1st year	SDG 5, SDG 8, SDG 10	Lectures and seminars, SRD.

		analysing the state of human capital.			
3	Sustainable Management of Natural Resources and Ecosystems	The course covers the principles and methods of sustainable management of natural resources. It examines strategies for biodiversity conservation, rational resource use and methods for ecosystem assessment.	7M05203-Geography, 1st year	SDG 11, SDG 15	Lectures and seminars, Wednesday-Friday.
4	Anthropogenic landscapes: transformation and sustainability	The course explores the impact of human activity on landscapes and methods for their sustainable use.	7M05203-Geography, 2nd year	SDG 11, SDG 15	Lectures and seminars, Wednesday, Thursday, Friday.
5	Human Capital and National Security	The course analyses the relationship between the level of human capital development and national security.	7M05203-Geography, 2nd year	SDG 5, SDG 8, SDG 10	Lectures and seminars, Wednesday, Thursday, Friday.
6	Sustainable Development and Geospatial Management: Global and Regional Strategies	The course "Sustainable Development and Geospatial Management: Global and Regional Strategies" focuses on the use of geospatial technologies in sustainable	7M05204-Geospatial Management of the Environment, 1st year	SDG 5, SDG 8, SDG 10, SDG 17	Lectures and seminars, SRD.

		development planning.			
7	Sustainable Development of Urban Areas	The course "Sustainable Development of Urban Areas" introduces students to methods of ensuring sustainability in urban planning and development.	7M05204- Geospatial Environmental Management, 1st year	SDG 5, SDG 8, SDG 10, SDG 17	Lectures and seminars, Wednesday-Friday.
8	National and Regional Tourism Planning	Objective: to develop the ability to determine guidelines for formulating and making decisions in the field of national/regional tourism planning.	7M11101 - Tourism, 1st year	SDG 9, SDG 17	Integration into lecture topics. State tourism policy and strategic planning. Tourism infrastructure and investment planning
9	Managing change in hospitality	Objective: to develop the ability to apply key principles of organisational development and basic models of change using modern management tools and methods that ensure effective and sustainable operation in crisis situations.	7M11104 - Restaurant and Hotel Business	SDG 12, SDG 13	Practical classes and case studies. Sustainable development and "green" changes in the hospitality industry.

10	Ecological and Economic Basics of Nature Management	The purpose of the discipline is to form a systematic understanding of the interaction of the environment and socio-economic spheres of human activity, methods of pricing natural resources and compensation for damage from env al pollution, economic incentives for environmental management in the transition to sustainable economic development.	7M05211-Ecology	SDG 12, SDG 17	Evolution and essence of the concept of sustainable development (lectures and seminars)
11	The impact of climate change on watershed management	To develop students' comprehensive understanding of the impact of climate change on the hydrological regime of catchment basins, water resources and ecosystems, as well as to master modern approaches and tools for catchment basin management in a changing climate.	7M05206-Hydrologists	SDG 6, SDG 13, SDG 14	Lectures and seminars
12	Current issues in hydroecology	To develop students' systematic understanding of contemporary	7M05206-Hydrologists	SDG 6, SDG 13, SDG 14	Lectures and seminars

		environmental problems of aquatic ecosystems, their causes and consequences, as well as to master methods of assessment, monitoring and sustainable management of water resources in conditions of anthropogenic impact and climate change			
13	Global and regional problems of meteorology	Developing students' comprehensive understanding of contemporary global and regional problems in meteorology related to climate change, extreme weather events, and anthropogenic impact on the atmosphere	7M05207-Meteorology	SDG 6, SDG 13, SDG 14	Lectures and seminars
14	Global climate and its changes	To provide students with a comprehensive understanding of the global climate system, the factors that shape it, and the mechanisms of climate change, as	7M05207-Meteorology	SDG 13, SDG 14	Lectures and seminars

		well as to teach them methods for analysing climate data, assessing current and projected climate change and its consequences for natural systems and socio-economic development.			
15	Climate innovation and sustainable development	Developing students' understanding of the role of climate innovation in mitigating and adapting to climate change, as well as mastering modern technological, managerial and scientific solutions aimed at ensuring the sustainable development of natural systems and socio-economic processes.	7M05207-Meteorology	SDG 13, SDG 14	Lectures and seminars
16	Organisation and Planning of Scientific Research	to develop the ability to formulate problems and tasks of scientific research with the choice of methods and means of solving them, to carry out scientific experiments, to adequately interpret	All specialties of the Faculty, 1st year	SDGs 1,4,5,8,9,10, 11, 12, 17	Lectures and seminars, IWM

		research results and present them.			

Doctoral programme:

№	Name of discipline	Purpose of the discipline	Name of educational programme, course	Sustainable Development Goals (SDGs)	Form of SDG integration
1	Natural and urbanised ecosystems	To develop the ability to evaluate and apply modern concepts of urban ecological planning and design, rational nature management in urban conditions	8D05207 – Ecology", 1st year	SDG 11	Lectures and seminars, Wednesday, Thursday, Friday.
2	State management of the tourism sector: foreign and domestic experience	Objective: to develop the ability to assess the effectiveness of government projects in the field of tourism in modern economic conditions using Kazakhstan as an example, contributing to the optimisation of government planning in the field of tourism.	8D11101 - Tourism	SDG 16	Integration into lecture topics. State tourism policy and strategic planning in the context of SDGs.
3	Anthropogenic impact of subsoil use	Development of in-depth systematic knowledge among doctoral students	8D05205 – Geoecology and Natural	SDG 9	Lectures and seminars,

		about the anthropogenic aspects of subsoil use, the ecological functions of the lithosphere, requirements for the rational and comprehensive use of subsoil resources, and the legal and economic mechanisms for managing subsoil use.	Resource Management"		Wednesday-Friday.
4	Organisation of geographical science and education in the Republic of Kazakhstan	The aim of the discipline is to develop a system of knowledge and skills in the organisation of geographical science and methods of teaching geography in higher education.	8D01503-Geography, 1st year	SDG 4	Lectures and seminars, Wednesday, Thursday, Friday.
5	Human Capital Management	The aim of the course is to develop knowledge about the economic and geographical mechanisms of human resource reproduction in the modern market and innovative mechanisms for human capital formation in the transition to	8D05202 - Geography, 1st year	SDG 5, SDG 10	Lectures and seminars, SRD.

		sustainable development.			
6	Comprehensive study of the rational use of land resources	The aim of the discipline is to develop the ability to describe the principles and methods of comprehensive research into the rational use and protection of land.	8D07304-Land Management, 1st year	SDG 15	Lectures and seminars, Wednesday, Thursday, Friday.
7	Natural changes and anthropogenic transformation of water resources	To develop students' comprehensive understanding of natural processes of change in water resources and the extent of anthropogenic impact on them, as well as to master methods of assessment, monitoring and management of water systems in the context of climate change and increasing economic pressure.	8D05203-Hydrologists	SDG 6, SDG 13, SDG 14	Lectures and seminars
8	Available potential of alternative energy sources	Forming a systematic understanding among students of the types of alternative energy sources, their natural	8D05204-Meteorology	SDG 6, SDG 13, SDG 14	Lectures and seminars

		resource potential and availability, as well as mastering methods for assessing, rationally using and integrating renewable energy sources for sustainable development and reducing anthropogenic pressure on the environment			
9	Ecological and climatic potential of Kazakhstan	To provide students with a comprehensive understanding of the ecological and climatic conditions and natural resource potential of the Republic of Kazakhstan, their spatial and temporal variability, as well as to teach methods for assessing and rationally using ecological and climatic potential for sustainable socio-economic development and adaptation to climate change.	8D05204-Meteorology	SDG 6, SDG 13, SDG 14	Lectures and seminars

10	Bioenergy of living organisms	To develop the ability to analyse modern theoretical knowledge and scientific achievements in the field of energy conversion in living systems, the the structural and functional organisation of cell membranes, as well as information about the main energy-storing and energy-consuming processes and reactions within cells associated with the vital functions of the organism, in order to apply the knowledge gained in professional activities.	8D05207 – Ecology, 1st year	SDGs 3, 7, 12, 15	Lectures and seminars, SRC

Thus, the Faculty of Geography and Environmental Sciences ensures the comprehensive and systematic integration of the Sustainable Development Goals into the educational process, developing students' professional and universal competencies in line with the modern challenges of sustainable development.

Dean of the Faculty
of Geography and Environmental Sciences Aktymbayeva A.S.