

Ecological Faculty

COURSE UNIT ANNOTATION¹

Curriculum

05.06.01 "Earth Sciences"/ «Науки о Земле»

Modern environmental studies / Современные исследования окружающей среды

Course area	Academic English
Course area	Academic English
Earned hours	4 credit units (144 hrs)
Curriculum briefing	
Course unit	Content of course unit
Academic writing	Written scientific work, its varieties: analytical essay, scientific article, scientific report. Structure and rules of registration of scientific works. Rules for citing, making footnotes. The rules for compiling bibliography in the Russian and English scientific text. The practice of writing a scientific article, an analytical essay, a scientific report.
Business correspondence in research activities	Correspondence with international publishers, reviewers, colleagues, conference organizing committees, grantors. Types of letters. The structure and content of business letters.
Academic speaking	Presentation of the report (with multimedia presentation) on the research topic. Scientific discussion. Speech models, cliché, in oral scientific communication. Scientific presentation. Presentation rules for an international scientific conference. Language material: orthoepic, lexical, grammatical, stylistic norm of scientific speech. Lexical minimum - 5,000 units, including 500 specialty terms

Prepared by:

Assc. Prof. Dr. of Foreign lang. Dept.
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M.A. Rudneva

Head of Foreign lang. Dept.
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N.G. Valeeva

Line Director



N.A. Chernykh

Federal State Autonomous Educational Institution of Higher Education
"Peoples' Friendship University of Russia"

Ecological Faculty

COURSE UNIT ANNOTATION¹

Curriculum

05.06.01 "Earth Sciences"/ «Науки о Земле»

Modern environmental studies / Современные исследования окружающей среды

Course area	Foreign Language
Earned hours	5 credit units (180 hrs)
Curriculum briefing	
Course unit	Content of course unit:
Academic writing	Plan, theses, report, report on the research topic. Written reviewing and annotating of scientific information from various sources. Business letter.
Academic speaking	Message / conversation on the subject of dissertation research. Report (with multimedia presentation). Academic discussion. Oral reviewing and annotating of academic literature. Language material: orthoepic, lexical, grammatical, stylistic norm of scientific speech. Lexical minimum - 4500 units, including 500 specialty terms
Translation of specialized academic texts	Scientific translation. Basic concepts of scientific translation. Lexical-grammatical and stylistic features of scientific translation. Translational transformations. ICT is translated. Design and editing of the translation. Full, summarized, abstract translation. Workshop of written translation of a scientific text from a foreign language into Russian on the subject of research (using dictionaries, reference books, ICT).

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ABSTRACT OF THE ACADEMIC DISCIPLINE

Educational programme
05.06.01 Earth Sciences
Ecology: Modern environmental studies

Educational programme	Russian as a Foreign Language
05.06.01 Earth Sciences	4 units (144 hours.)
COURSE DESCRIPTION	
Course units	Outline of the course units
Section 1. Profession-oriented reading of scientific texts in order to obtain information for scientific activities.	1). The main types of reading scientific-oriented texts in order to prepare for research activities of graduate students: oriented and abstract, generalizing and abstract, oriented and skim reading evaluative skim-reading, studying-creating. Work with scientific texts: orientation, search, generalization of knowledge, the subject of text materials.
	2). Types and genres of the main written scientific texts: application-obligation to conduct scientific research in the specialty; graduate student's individual training plan; plan-prospectus (abstract presentation of questions located in a logical sequence, on which factual material can be systematized); the card-catalogue of scientific publications (bibliographic description and analytical summary of information sources)
Section 2. Structural and informative features of abstract texts	1) The structure and content of different types of secondary text: summary, synopsis, abstract, abstract review. Logical-information actions activities that must be performed during the processing of the original text in order to obtain a secondary text.
	2). Oral abstract review. Computer programs for the abstract review presentations (PowerPoint, Persuasion, etc.) of the research topic.
Section 3. Structural & compositional construction of scientific written text fragments	Types of the semantic structure of a paragraph as a structural-compositional unit of text: - deductive (generalization with the subsequent disclosure of thought, illustration of arguments); - inductive (sets out the particular facts - the conclusion is formulated).

Section 4. The language and style of written scientific texts	Lexical and grammatical knowledge: 1. common lexis; 2. terminological lexis; 3. words - organizers of scientific idea and creativity; 4. Phraseological and established collocations for the expression of the messages logical connections and the certain concepts designation.
	Language / speech design of the introductory part of the problem article (the general part of the abstract). Language and speech standards - a cliché.
	The use of verbal mean in creating a summary of a scientific article / oral presentation is a presentation of the topic and problems of the study. Standard speech clichés, used in the introductory part, for general description of the content, argumentation of the provisions, evaluation of the author's information

Developers:

Associate Professor of the Russian
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Academy of Engineering
Head of the Russian Language
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Academy of Engineering
Professor



N.G. Karapetyan



I.A. Pugachev

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Ecological faculty

ANNOTATION OF THE ACADEMIC DISCIPLINE

Ecology: Modern environmental studies

Course Title	Waste management
Course Scope	4 credits (144 hours)
COURSE SUMMARY	
Course units (Topics)	Course units (Topics) Outline
The problem of waste.	The concept of waste. The main types of waste, their brief description of the principles of waste classification. Waste management processes (waste life cycle). Waste Management Organization: the target and the municipal program "Waste" .
The waste in the environment	The stability and resistance of ecosystems to pollution. Environmental hazard waste. The combined impact on the components of the environment and living organisms. Synergism, additivity, antagonism. The concept of ecosystem sustainability. Circulation of substances - the important principle of the sustainability of ecosystems. Biogeochemical cycles of carbon, hydrogen, oxygen, sulfur, phosphorus and metals. Self-cleaning ability of ecosystems: biotic and abiotic processes. ecosystem sustainability parameters. The specifics of teaching environmental subjects: Modern methods of analysis
Ensuring environmental safety in the handling of waste.	Documentation of the waste management activities. Modern analytical methods to ensure the control and identification of wastes. The class definition of waste toxicity. Rationing impact of waste on the environment. Classification OPS quality standards and the principles of their determination. Certification of waste. Certification of hazardous waste. Licensing of waste management activities. Medical and ecological and social aspects in the waste management system
Recycling, and disposal of industrial waste	Common methods of processing of non-radioactive waste. Storage in the slime and tailings. Heat treatment. Sludge processing (electroplating, oil). Features of industry recycling. Integrated waste management system. Sources and processing of radioactive waste. Features of radioactive waste disposal
Additional sources of solid waste	Waste effluents. Air emissions. Sources and types of pollution of the hydrosphere. Industrial, household and atmospheric discharges. Types of industrial wastewater pollution. Modern methods of waste water purification from industrial pollution. Agricultural and domestic waste water, and methods for their treatment. Gas emissions. Dry and wet cleaning methods. Methods of processing and recycling of sediments and sludge. Thermal methods. Biological methods. Methan digestion. Aerobic oxidation (composting). Vermikulation.
Sources and methods of waste with a high organic content processing	Major sources of wastes that contain organic matter. The specifics of processing methods. Bioenergy on waste (chemical oxidation, thermal gas generation, biological fermentation). Recycling in

	agricultural industry. Biogazenergy installations. Aerobic and anaerobic methods of waste decontamination. Biocomposting
Technologies of sorting and biowaste processing	MSW separation processes and systems for processing solid waste. Technological parameters of solid waste separation process Technological MSW separation scheme. Magnetic, electrodynamic and electric separation. The principles of the processes, types of separators. Aeroseparation. Types of separators. Crushing MSW. Types of grinders. Screening of MSW. Types of screens. Manual sorting. Flotation and gravity processing. Methods of MSW incineration. Energy production. Ecological aspects of combustion. Technologies of Biothermal aerobic composting. Complex processing of solid waste. Fundamentals of processing complexes.
Landfills	Hygienic requirements for the territory selection - the landfill location. The layout and arrangement of polygons. Processes occurring in the solid waste polygons. Recultivation security control in landfills. Landfills maintenance. Hygienic requirements to the choice of methods of disposal of industrial waste (solid, powdered, pasty). Features of water-soluble, liquid and flammable waste dumping. Preventive measures and current supervision of the landfills. landfill passport.
Main principles and procedures of designing industrial facilities for recycling.	Comparison and selection of the best available recycling technologies. Main features of incineration plants environmental design (WIPs). Principles of environmental impact assessment (EIA) of the enterprises for processing and recycling. Mathematical modeling of recycling and disposal of waste

Developer

associate professor, Department of environmental monitoring and forecasting

Kharlamova Marianna D.

Head of the program

Professor

Chernykh Natalia A.

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DISCIPLINE ANNOTATION

Education Programs in all fields of postgraduate study

Discipline	History and Philosophy of Science
Total	4 credits (144 hours)
Contents	
Units	Topics
The subject and basic concepts of modern philosophy of science	Philosophy of science as the study of general laws of scientific knowledge in its historical development and changing socio-cultural context. The evolution of approaches to the analysis of science. Logical and epistemological approach to the study of science. Positivist tradition in the philosophy of science. Expansion of the field of philosophical issues in the postpositivistic philosophy of science.
Science in the culture of modern civilization	Traditionalist and technogenic types of civilizational development and their basic values. The role of science in modern education and the formation of personality. Functions of science in society.
The genesis of science and the main stages of its historical evolution	The culture of the ancient polis and the formation of the first forms of theoretical science. Antique logic and mathematics. Western and Eastern medieval science. The formation of experimental science in the new European culture. Background of the experimental method and its connection with a mathematical description of nature. Formation of science as a professional activity. The genesis of disciplinary organized science. Formation of technical sciences. The formation of social and human sciences.
The structure of scientific knowledge	The variety of types of scientific knowledge. Empirical and theoretical levels, the criteria for their distinction. Features of the empirical and theoretical language of science. The structure of empirical knowledge. Experiment and observation. Empirical dependencies and empirical facts. The structure of theoretical knowledge. Primary theoretical models and laws. Developed theory. Theoretical models. Foundations of science. Ideals and norms of research. Scientific picture of the world. Philosophical foundations of science.
Dynamics of science	The interaction of the foundations of science and experience, the formation of a new discipline. Formation of primary theoretical models and laws. The role of analogies in the theoretical search. Procedures to substantiate theoretical knowledge. The relationship of the logic of discovery and logic of justification.. Formation of a developed scientific theory. Problem

	situations in science. The development of science under the influence of new theories.
Scientific traditions and scientific revolutions. Types of scientific rationality	The interaction of traditions and the emergence of new knowledge. Scientific revolution as the restructuring of the foundations of science. Problems of typology of scientific revolutions. Intra-disciplinary mechanisms of scientific revolutions. Global revolutions and types of scientific rationality. Historical change of types of scientific rationality: classical, non-classical, post-non-classical science.
Features of the modern stage of development of science. Prospects for scientific and technological progress	Modern processes of differentiation and integration of sciences. Global evolutionism as a synthesis of evolutionary and systemic approaches. New ethical problems of science at the end of XX century. The problem of humanitarian control in science and high technology. Environmental and socio-humanitarian expertise of scientific and technical projects. Scientism and anti-scientism. Science and parasience. The role of science in overcoming contemporary global crises.
Science as a social institution	Scientific communities and their historical types. Science schools. Scientific training. Historical development of the methods of transmitting scientific knowledge. Science and economics. Science and power. The problem of state regulation of science.
Modern philosophical problems of the branch of science	In the areas of training postgraduate students

Author:

Professor of the Ontology
and Epistemology department

The Head of the Ontology
and Epistemology department

The Head of the Social
Philosophy department



V.M. Naidysh



V.N. Belov



M.L. Ivleva

DISCIPLINE ANNOTATION

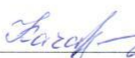
Education Programs in all fields of postgraduate study

Discipline	<i>Pedagogy of Higher Education</i>
Total	2 credits (72 hours)
Contents	
Units	Topics
Unit 1. Pedagogy of higher education as a field of study and academic subject area.	1. Pedagogy as a science, key concepts. Pedagogy of higher education in the system of pedagogical science. 2. Systems of higher education: comparative analyses. 3. Contemporary trends in higher education. Internationalization of higher education.
Unit 2. Didactics of higher education.	1. General aspects of didactic system. 2. Content of higher education (laws and regulations; main principles of selecting content). Curriculum and course syllabus. 3. Forms and methods of teaching. Lecture in modern higher education. Seminars, practical training, laboratory class. Project – working. 4. Students' individual work. 5. Interactive methods of teaching (discussions, case-study, training, professional simulation etc.). 6. ICT in modern higher education. 7. Monitoring and evaluation of academic performance. Point rating system.
Unit 3. Educational environment of modern university.	1. Faculty members' rights and responsibilities. Professional ethics. 2. Faculty interaction with students: case study. 3. Educational potential of extra-curricular activities.

Author:

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Psychology and Pedagogy Department  O.K. Logvinova

The Head of the

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Ecological faculty

ANNOTATION OF THE ACADEMIC DISCIPLINE

05.06.01 Earth Sciences

Specification Ecology: Modern environmental studies

Course Title	Methodology of scientific research
Course Scope	3 credits (108 hours)
COURSE SUMMARY	
Course units (Topics)	Course units (Topics) Outline
Introduction	Modern science. Why do science. Summary determinant Classification of Sciences. Matches in science. Scientific work.
Paradoxes of scientific creativity	Hurry slowly, Title, Table of Contents, epigraph, first line, last paragraph, do everything myself, do it all at once,
Aspects of the methodology of scientific research and education	Features of collective scientific activity:
Hidden mechanisms of scientific creativity and ethics researcher.	Three stages of scientific creativity as an expression of the individual researcher. Responsibilities of the researcher. The norms of scientific ethics
Main features of the research	Prospect-thesis plan; justification of urgency topics; problem, object, object, goal, objectives. research approach, "On protection imposed" and "scientific novelty"
Working with scientific literature. Working with the conceptual apparatus	Book benefits and harms . citation, plagiarism. Information and desinformation.
Experimental work	Performance criteria,
Writing the thesis	Classification structural sections of the thesis, conclusions (and informative booklet) reduction.
Preparations for the defence	Overcurrent protection, the main issues on defense,
Publications on the subject of the dissertation	Primary requirements. Abstract.

Developer:

Senior lecturer, Department of environmental monitoring and forecasting



Kapralova Daria O.

The Head of the program

Professor



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Ecological Faculty

ABSTRACT OF THE ACADEMIC DISCIPLINE

Educational program 05.06.01 Earth Sciences

Ecology: Modern environmental studies

Discipline name	Environmental quality regulation
Study load	4 credits (144 hours)
COURSE DESCRIPTION	
Course units	Outline of the course units
Topic 1:	Theoretical basis of assessment and modeling of natural systems sustainability. The concept of sustainability as a basis for creating models of pollution of the environment and use of natural resources. Practical examples of pollution modeling and reflected in these different aspects of the stability properties of natural-systems to anthropogenic influence. The specifics of teaching specific subjects in high school: the evaluation pressures on natural systems.
Topic 2:	Evolution of environmental standards, from the sanitary and hygienic standards for ecosystem evaluation. Comparative analysis of sanitary-hygienic and ecosystem approaches to rationing. Prospects of transformation normation systems. Practical examples.
Topic 3.	Evolution of environmental regulations, from the rules to the impact of ideas on the best available technologies. Comparative analysis of the impact of standards and valuation-on the best technologies.
Topic 4.	Foreign system of environmental standards: the EU quality standards of the atmosphere, hydrosphere, soil and land resources and regulation of anthropogenic-governmental influences on them. Features of the regional legislation.
Topic 5.	Foreign system of environmental standards: the United States and Canada experience. The specification of atmosphere, hydrosphere, soil and land resources quality and human impacts regulation. Features of the regional legislation.
Topic 6.	Foreign system of environmental standards: the Chinese experience, quality standards of the atmosphere, hydrosphere, soil and land resources and anthropogenic governmental influences regulation. Features of the regional legislation.
Topic 7.	Rationing of tolerable risk . The concept of tolerable risk. The notion of acceptable risk-assessment as a basis for the creation of environmental quality standards, environmental impacts, environmental standards, processes and services, product standards.

Topic 8.	Corporate system of ecological regulation and standardization. Practical examples of corporate environmental standards systems: the experience of Russian and foreign companies. Integrated management systems and specific environmental regulation.
Topic 9.	The practice of the environmental standards development in Russia. "Weaknesses" and the WHO-possibilities of improvement. The idea of standards harmonization and modern international programs.
Topic 10.	Modern priorities of anthropogenic load. Priority of environmental issues and the anthropogenic load on the environment reduce. Areas of environmental regulation system development. Russia's international obligations and requirements for rationing system.

Developer:

Professor of Applied ecology Department

Khaustov Alexander P.

Head of the program

Professor

Chernykch Natalia A.

Ecological faculty

ANNOTATION OF THE ACADEMIC DISCIPLINE

05.06.01 Earth Sciences

Specification Ecology: Modern environmental studies

Course Title	Product certification according the international environmental standards
Course Scope	4 credits (144 hours)
COURSE SUMMARY	
Course units (Topics)	Course units (Topics) Outline
Tasks and objectives	Elements of the history of certification. Properties of products as the certification of the object. Factors shaping the consumer properties of the product, products and production processes requirements. The specifics of teaching ecological disciplines: modern methods of analysis
Voluntary and mandatory conformity assessment	Forms of conformity. Voluntary confirmation of compliance. Signs of conformity of voluntary certification. Mandatory confirmation of compliance.
Participants and certification procedure for its implementation	Certification participants. The rights and obligations of the applicant. OS functions during the compulsory certification. Reference mark on the market. Import of Russian products subject to mandatory conformity assessment and acceptance of the results of conformity assessment abroad by Russian Federation
Participants and certification procedure for its implementation	Certification participants. The rights and obligations of the applicant. OS functions during the compulsory certification. reference mark on the market. Import of Russian products subject to mandatory conformity assessment and acceptance of the Russian Federation the results of conformity assessment abroad.
Certification of quality systems ISO 9000	The emergence of certificates of conformity for quality assurance system. Problems of standardization and certification of quality management systems. Certification of production. Certification services.
International standardization in the field of environmental protection	International Organization for Standardization ISO: structure, objectives, activities, modernization. ISO 14000 as the international environmental management system standard. The participation of Russia in international standardization.
Ecological certification	The development of ecological certification in Russia. Mandatory certification on environmental requirements. Voluntary certification
Environmental labeling	Signs of conformity. Demonstration of compliance with environmental requirements. Eco-labeling in the EU. Eco labeling in Russia.
Certification of the integrated	Gaasp system in the EU. Gaasp in Russia. Development of

system of safety management and quality management of food products on the basis of the process approach ISO 22000: 2005	the safety management system of food products in accordance with ISO 22000: 2005
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Developer:

Professor, Department of System Ecology

Kalabin Cennady A.

Head of the program

05.06.01. Earth Sciences

Chernykch Natalia A.

Ecological faculty

ANNOTATION OF THE ACADEMIC DISCIPLINE

05.06.01 Earth Sciences

Specification Ecology: Modern environmental studies

Course Title	Human ecology and hygiene of environment
Course Scope	4 credits (144 hours)
COURSE SUMMARY	
Course units (Topics)	Course units (Topics) Outline
Introduction to the course	General concepts about the human relationship with the environment
Public health and the environment	Maternal and child. Indicators of population health. The overall incidence. Health workers in various sectors of the economy. Solving problems on the severity of the labor process. Solving problems on the labor intensity of the process. Problem solving Review of accidents at work.
Factors affecting health	Diseases related to environmental pollution. The impact of air pollution on human health. Noise pollution. Hygienic evaluation of environmental pollution: air, water. Hygienic evaluation of environmental pollution: soil, waste. The impact of negative environmental factors on the safety systems of the human body. Systems of perception and compensate for adverse external environmental conditions. The impact of air pollution on human health. Chemical water pollution. Microbiological contamination of the water.
The principles establish the remote control harmful and dangerous factors	The impact of hazardous and harmful factors on human principles and the establishment of norms. The objectives and principles of valuation. The principles establish the remote control harmful and dangerous factors, the physical criteria and principles established norms. Natural systems provide protection of the human body. Adaptation and homeostasis. Psychological defense system of the body. Decision and preparation of case studies on the topics studied. Simulation of emergencies.

Developer:

Associate Professor, Department of Forensic Ecology
with Human Ecology Course



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The Head of the program
professor



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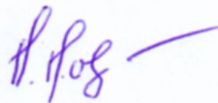
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Ecological Faculty*

SUMMARY ACADEMIC DISCIPLINE
Professional Russian
Educational Program: 05.06.01 Earth Science
03.02.08 Modern environmental studies

Name of the discipline	Russian as a Foreign Language 2
Capacity of the discipline	4 3E (144 час.)
Content of the discipline	
Name of the course unit	Name of the course unit
<i>Introductory course of Phonetic and Grammar</i>	Russian alphabet. Greeting. Construction <i>Кто это?</i> Personal pronouns. Acquaintance. Names of products. Constructions <i>Что это? Это молоко? Да, это молоко.</i> Accusative case in the constructions <i>Я (не) ем ... Я (не) люблю ...</i> Numbers 1 - 1000. Pronunciation of telephone numbers. Construction <i>Сколько стоит...?</i> Adverbs of place (<i>тут, там, справа, около,</i> etc.). Interrogative sentences with the word <i>где?</i> Names of monetary units (<i>рубль, копейка</i>).
<i>Basic level</i>	Genders of nouns. Possessive Pronouns. Names of persons of male and female sex. Constructions <i>Что такое ...? Что значит ...? Как по-русски...?</i> Names of objects of the surrounding reality. Formation of Plural. Expression of time in the simple sentence. Adverbs of time, the names of the days of the week. Accusative Case. Nouns in Accusative Case. Russian Verbs. Verbs <i>быть, хотеть, родиться, жить, работать, отдыхать, учиться, говорить, учить, понимать, сказать, знать.</i> Constructions with the word <i>должен (должен +инфинитив).</i> Tenses of Russian Verb. Constructions <i>У меня есть/нет.</i> Impersonal constructions with words <i>можно, нужно, нельзя.</i> Verbs of Motion. Verb <i>вернуться.</i> Accusative and Genitive Cases with questions <i>куда? откуда?</i> Etiquette of telephone conversation.

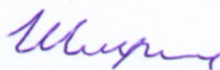
Developers:

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