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ФИО: Ястребов Олег Александрович
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**PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
NAMED AFTER PATRICE LUMUMBA**

Institute of Environmental Engineering

educational division (faculty/institute/academy) as higher education programme developer

COURSE SYLLABUS

MODERN PROBLEMS OF ECOLOGY/ Современные проблемы экологии

(наименование дисциплины/модуля)

Recommended by the Methodological Council for the Education Field:

05.04.06 Ecology and nature management

(код и наименование направления подготовки/специальности)

The discipline is mastered within the framework of the main professional higher education program:

УПРАВЛЕНИЕ ПРИРОДОПОЛЬЗОВАНИЕМ / NATURE MANAGEMENT

(наименование (профиль/специализация) ОП ВО)

1. COURSE GOALS

The course goal is to present current state of ecology as a comprehensive science about interactions between organisms and surrounding environment as well as about application of the ecological knowledge in solving of problems of connected scientific directions and practice of the environmental regulation and management.

2. LEARNING OUTCOMES

The mastering of the discipline "Modern problems of Ecology" is aimed at the formation of the following competencies (parts of competencies) in students:

Table 2.1. List of competencies formed by students during the development of the discipline (LEARNING OUTCOMES)

Code	Competence	Indicators of competence achievement (within the framework of this discipline)
ПК-5 GC-5	Способен анализировать и учитывать разнообразие культур в процессе межкультурного взаимодействия. GC-5 Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	УК-5.1. знает основные категории философии, законы исторического развития, основы межкультурной коммуникации GC-5.1 knows the main categories of philosophy, the laws of historical development, the basics of intercultural communication
ОПК-2 GPC-2	ОПК-2. Способен использовать специальные и новые разделы экологии, геоэкологии и природопользования при решении научно-исследовательских и прикладных задач профессиональной деятельности. GPC-2. Able to use special and new sections of ecology, geoecology and nature management in solving research and applied tasks of professional activity	ОПК-2.1 Знает основы экологии, геоэкологии, экономики природопользования и экономики замкнутого цикла, а также экологического менеджмента GPC-2.1 Knows the basics of ecology, geoecology, environmental economics and closed-loop economics, as well as environmental management

3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The discipline "Modern problems of Ecology" refers to Compulsory Disciplines of the Higher Education Program.

Within the framework of the higher education program, students also master other disciplines and/or practices that contribute to expected learning outcomes of the discipline "Modern problems of Ecology".

Table 3.1. List of Higher Education Program components that contribute to expected learning outcomes

Code	Competence	Previous Disciplines (Modules)	Subsequent Disciplines (Modules)
ПК-5 GC-5	Способен анализировать и учитывать разнообразие культур в процессе межкультурного взаимодействия. GC-5 Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	Философские проблемы естествознания / Philosophical problems of nature science	Международное сотрудничество в области охраны окружающей среды / International collaboration in environmental protection Устойчивое развитие / Sustainable development Методология научного творчества / Methodology of scientific creativity
ОПК-2 GPC-2	ОПК-2. Способен использовать специальные и новые разделы экологии, геоэкологии и природопользования при решении научно-исследовательских и прикладных задач профессиональной деятельности. GPC-2. Able to use special and new sections of ecology, geoecology and nature management in solving research and applied tasks of professional activity		HSE менеджмент / HSE-management Методы мониторинга экологической безопасности природопользования / Methods of monitoring environmental safety of nature management / Methods of monitoring environmental safety of nature management / Methods of monitoring environmental safety of nature management Мониторинг природно-техногенных систем / Monitoring of natural and man-made systems Геохимические методы оценки окружающей среды / Geochemical methods of environmental assessment Ландшафтное планирование / Landscape planning Региональная геоэкологическая оценка территорий / Regional geoecological assessment of territories Производственная практика / Production practice

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

Workload of the course «Modern problems of Ecology» is 3 ECTS.

Table 4.1. Types of academic activities during the period of the HE program mastering

Вид учебной работы	TOTAL	Semesters			
		1	2	3	4
<i>Contact academic hours</i>	<i>34</i>	<i>34</i>			

Вид учебной работы		TOTAL	Semesters			
			1	2	3	4
Incl.:						
Lectures		17	17			
Lab work						
Seminars		17	17			
<i>Self-study</i>		<i>47</i>	<i>47</i>			
<i>Evaluation and assessment</i>		<i>19</i>	<i>19</i>			
Total workload	Ac.hours	108	108			
	ECTS	3	3			

5. COURSE CONTENTS

Table 5.1. The content of the discipline (module) by type of academic work

Name of the discipline section	Content of the section (topics)	Type of academic activity*
Introduction	Ecology as a complex science direction. Stages of the development of the ecological knowledge and science. System of the ecological disciplines. Ecology and nature management. Ecology and sustainability	Lectures, Seminars
Concept of the nature (use) management	Main directions and types of nature management. Laws and rules in ecology. Modern ecological problems of nature management: environmental consequences of gaps in nature management.	Lectures, Seminars
Human ecology	Stages of human development as a biological species. Dependence on natural conditions and factors. Periods of the noosphere development	Lectures, Seminars
Crises in the history of mankind	Crises in the historical development: sources and consequences. Modern stage of the development: difficulties in the functioning of ecosystems. Demographic crisis. Social crisis. Energy crisis	Lectures, Seminars
Strategies for overcoming the environmental crisis	Sustainable development strategies and goals. Solving environmental and social problems. Solving the problems of resource availability. Modern ecological research.	Lectures, Seminars

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Classroom equipment and technology support requirements

Classroom for Academic Activity Type	CLASSROOM EQUIPMENT	Specialized learning, laboratory equipment, software and materials for the mastering the course
Lecture	An auditorium for conducting lecture-type classes, equipped with a set of specialized furniture; a board (screen) and technical means of multimedia presentations.	-

Classroom for Academic Activity Type	CLASSROOM EQUIPMENT	Specialized learning, laboratory equipment, software and materials for the mastering the course
Seminars	Classroom, equipped with a set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector, laptop, projection screen, Stable wireless Internet connection. Software: Microsoft Windows, MS Office / Office 365, MS Teams, Chrome (latest stable release), Skype	-
Self-studies	An auditorium for independent work of students (can be used for seminars and consultations), equipped with a set of specialized furniture and computers with access to an electronic information and educational environment.	-

7. RECOMMENDED SOURCES FOR COURSE STUDIES

• *Main reading:*

1. Huang C. Y. et al. Introduction to ecology. – 2018.
2. Benjaminsen T. A., Svarstad H. Political ecology: A critical engagement with global environmental issues. – Springer Nature, 2021.

Additional sources:

1. Currie D. J. Where Newton might have taken ecology //Global Ecology and Biogeography. – 2019. – T. 28. – №. 1. – C. 18-27.
2. Riisgård H. U. General Ecology. – 2018..

Internet-sources:

1. Electronic library system of the RUDN and third-party electronic library systems, to which university students have access on the basis of concluded contracts:
 - electronic library system of the RUDN University <http://lib.rudn.ru/MegaPro/Web>
 - electronic library system «Университетская библиотека онлайн» <http://www.biblioclub.ru>
 - electronic library system Юрайт <http://www.biblio-online.ru>
 - electronic library system «Консультант студента» www.studentlibrary.ru
 - electronic library system «Лань» <http://e.lanbook.com/>
 - electronic library system «Троицкий мост»
2. Databases and search engines:
 - electronic fund of legal and regulatory and technical documentation <http://docs.cntd.ru/>
 - Yandex search engine <https://www.yandex.ru/>

- Google search engine <https://www.google.ru/>
- abstract database SCOPUS <http://www.elsevierscience.ru/products/scopus/>
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*Educational and methodological materials for independent work of students during the development of the discipline/ module *:*

1. A course of lectures on the discipline " Modern problems of Ecology".

* - all educational and methodological materials for independent work of students are placed in accordance with the current procedure on the discipline page in the Telecommunication educational and Information System!

8. MID-TERM ASSESSMENT AND EVALUATION TOOLKIT

Evaluation materials and a point-rating system* for assessing the level of competence formation (part of competencies) based on the results of mastering the discipline " Modern problems of Ecology" are presented in the Appendix to this Work Program of the discipline.

* - evaluation toolkit and ranking system are formed on the basis of the requirements of the relevant local regulatory act of the RUDN (regulations / order).

DEVELOPER:

Professor of the Department of
Environmental Safety and
Product Quality Management

Position, Department



Signature

Redina M.M.

Name

HEAD OF THE DEPARTMENT:

Head of the Department of
Environmental Safety and
Product Quality Management

Department



Signature

Savenkova E.V.

Name

HAED OF THE HIGHER EDUCATION PROGRAM:

Professor of the Department of
Environmental Safety and
Product Quality Management

Position, Department



Signature

Redina M.M.

Name