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

Institute of Environmental Engineering
(наименование основного учебного подразделения (ОУП)-разработчика ОП ВО)

COURSE SYLLABUS

History and methodology of ecology and natural resources management
(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:

Economics of natural resources management
(наименование (профиль/специализация) ОП ВО)

2022

1. COURSE GOALS

The course is aimed on receiving of basic knowledge about the development, current state and prospectives of ecology as complex scientific field.

2. LEARNING OUTCOMES

The mastering of the discipline "History and methodology of ecology and natural resources management" 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)
GPC -2	Able to use special and new sections of ecology, geoecology and nature management in solving research and applied problems of professional activity	**GPC -2.1** Knows the basics of ecology, geoecology, environmental economics and circular economy, as well as environmental management
		GPC -2.2 Able to use environmental, economic and other special knowledge and algorithms to solve professional problems
		GPC -2.3 Able to find, analyze and competently use the latest information and modern techniques in the performance of research and applied tasks

3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The discipline "History and methodology of ecology and natural resources management" 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 "History and methodology of ecology and natural resources management".

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

Code	Competence	Previous Disciplines (Modules)	Subsequent Disciplines (Modules)
GPC -2	Able to use special and new sections of ecology, geoecology and nature management in solving research and applied problems of professional activity.	Estimations of natural resources / Оценки природных ресурсов Methodology of scientific creation / Методология научного творчества	Environmental standards and nature management / Экологические стандарты и природопользование Modern remediation technologies / Современные технологии ремедиации Economic aspects of natural resources management / Экономические аспекты природопользования Management of water resources / Управление водными ресурсами

Code	Competence	Previous Disciplines (Modules)	Subsequent Disciplines (Modules)
		Научно-исследовательская работа / Research work	Environmental-economic aspects of environmental projects / Эколого-экономические аспекты экологических проектов Engineering ecology / Инженерная экология Monitoring of environmental impacts / Мониторинг экологических воздействий Industrial safety / Промышленная безопасность Simulation and prevention of accidents / Моделирование и предупреждение аварий Учебная практика / Educational practice Производственная практика / Production practice НИР / Research work Преддипломная практика / Pre-graduate practice

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

Workload of the course « History and methodology of ecology and natural resources management» is 2 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**
Contact academic hours		*27*			*27*	
Incl.:						
Lectures		9			9	
Lab work						
Seminars		18			18	
Self-study		*41*			*33*	
Evaluation and assessment		*14*			*12*	
Total workload	Ac.hours	**72**			**72**	
	ECTS	**2**			**2**	

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***

Modern environmental science	Development of environmental sciences. Ecology and a system of environmental disciplines.	Lectures, Seminars
18th and 19th century Ecological studies	Arcadian and Imperial Ecology Carl Linnaeus and Systema Naturae The botanical geography and Alexander von Humboldt The notion of biocoenosis: Wallace and Möbius Foundation of ecology as discipline Malthusian influence Darwinism and the science of ecology	Lectures, Seminars
20th century	Expansion of ecological though The biosphere – Eduard Suess and Vladimir Vernadsky The ecosystem: Arthur Tansley Ecological succession – Henry Chandler Cowles Animal Ecology - Charles Elton G. Evelyn Hutchinson - father of modern ecology 20th century transition to modern ecology	Lectures, Seminars
Ecological Influence on the Social Sciences and Humanities	Human ecology History and relationship between ecology and conservation and environmental movements	Lectures, Seminars
Modern nature management	Modern nature management and the development of ecological science. Sustainability theory.	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.	-
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	-

Classroom for Academic Activity Type	CLASSROOM EQUIPMENT	Specialized learning, laboratory equipment, software and materials for the mastering the course
	specialized furniture and computers with access to an electronic information and educational environment.	

7. RECOMMENDED SOURCES FOR COURSE STUDIES

Main reading:

1. Mittelbach G. G., McGill B. J. Community ecology. – Oxford University Press, 2019. URL: https://www.sciencedirect.com/science/article/pii/S0960982219310280

2. Hufnagel L. (ed.). Ecosystem Services and Global Ecology. – BoD–Books on Demand, 2018. URL: https://www.intechopen.com/chapters/62933

Additional sources:

1. Mackenzie A., Ball A. S., Virdee S. R. Instant Notes Ecology. – Taylor & Francis, 2020.

2. Borthakur M. Ecology, Economy and Society: the three pillars of Development.

3. Jain S. V. K. Applied Ecology and Sustainable Environment. – BFC Publications, 2021. URL: https://www.google.com/books?hl=ru&lr=&id=qRYsEAAAQBAJ&oi=fnd&pg=PA11&dq=book+ecology&ots=T1QuTNW1uM&sig=yd2pOCR_Il67KmxmnriHZQ9zCN0

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/
- ……..

*Educational and methodological materials for independent work of students during the development of the discipline/ module *:*

1. A course of lectures on the discipline "History and methodology of ecology and natural resources management".

* - 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 "History and methodology of ecology and natural resources management" 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		**Redina M.M.**
Position, Department	Signature	Name

HEAD OF THE DEPARTMENT:

Head of the Department of Environmental Safety and Product Quality Management		**Savenkova E.V.**
Department	Signature	Name

HAED OF THE HIGHER EDUCATION PROGRAM:

Professor of the Department of Environmental Safety and Product Quality Management		**Redina M.M.**
Position, Department	Signature	Name