

Federal State Autonomous Educational Institution of Higher Education

"Peoples' Friendship University of Russia"

Faculty of Ecology

Recommended by the Methodological council
on specialties and study directions

WORKING PROGRAM OF THE DISCIPLINE

Name of the discipline

ECONOMIC ASPECTS OF NATURAL RESOURCES MANAGEMENT

Recommended for the specialty/ direction

05.04.06 Ecology and nature management

Masters' program:

Economics of natural resources management

1. Goals and objectives of the discipline:

The purpose of the discipline is to familiarize students with the main criteria, indicators and methods of economic assessment of natural resources.

Tasks:

- familiarization with the criteria and indicators for the economic assessment of resources;
- familiarization with the role of economic assessment of natural resources in environmental management;
- familiarization with the techniques and methods of economic assessment of natural resources.

2. Place of discipline in the structure of the educational program:

The discipline **ECONOMIC ASPECTS OF NATURAL RESOURCES MANAGEMENT** refers to an optional part of block 1 of the curriculum.

Table No. 1 shows the previous and subsequent disciplines aimed at the formation of the discipline's competencies in accordance with the competence matrix of EP HE.

Table 1

Previous and subsequent disciplines aimed at building competencies

Nr.	Code and name of competence	Preceding disciplines	Subsequent disciplines (groups of disciplines)
Universal competencies			
1	UC-1 Willingness to act in non-standard situations, to bear social and ethical responsibility for the decisions made	-	Management of environmental-economic risks Ecologic-economical aspects of environmental projects
Professional competencies (type of professional activity - research, control and expert, organizational and management)			
3	PC-8 the ability to organize and manage research and development and expert and analytical work using advanced knowledge in the field of environmental management	-	Research work Management of environmental-economic risks Ecologic-economical aspects of environmental projects

3. Requirements for the results of mastering the discipline:

The process of studying the discipline is aimed at the formation of the following competencies according to the educational standard:

UC-1 Willingness to act in non-standard situations, to bear social and ethical responsibility for the decisions made

PC-8 the ability to organize and manage research and development and expert and analytical work using advanced knowledge in the field of environmental management

As a result of studying the discipline, the student must:

Know: theoretical basics of natural resources evaluation and management.

Be able to: to give qualitative and quantitative characteristics of nature management systems.

Possess: modern methods of evaluation, planning and forecasting in the sphere of natural resources evaluation and management.

4. The scope of the discipline and types of educational work

The total labor intensity of the discipline	2 credits								
Type of educational work	Total hours	Semesters							
		1	2	3	4	5	6	7	8
Classroom Lessons (total)									
Including:									
<i>Lectures</i>									
<i>Practical lessons</i>	16		16						
<i>Seminars</i>	-								
<i>Laboratory work</i>	-								
<i>Independent work</i>	34								
Control	2								
The total labor intensity, hours.	72								
The total labor intensity, credits	2								

5. Discipline content

5.1 Contents of discipline sections

Discipline section name	Section content (topics)
Introduction	Introduction. Methods for assessing natural resources. Natural resource potential: economic assessment methods.
Economic assessment of non-renewable resources	Economic assessment of non-renewable resources: main features. Approaches to the economic assessment. Practical examples
Economic assessment of renewable resources	Economic assessment of renewable resources: main features. Approaches to the economic assessment. Practical examples.
The resource base of enterprises, methods of its assessment and analysis of the effectiveness of use	The resource base of enterprises, methods of its assessment and analysis of the efficiency of use. The concept of the natural intensity of technological processes. Possibilities of regulating the natural intensity. Environmental and economic damages as "negative resources": assessment methods. The principles of the "green economy" and the possibilities of their practical implementation at enterprises.
Multifunctional resources and the specifics of their assessment in projects	Alternative estimates of natural resources. Multifunctionality of resources and problems of ensuring the efficiency of natural resources use.

5.2* Sections of disciplines and types of classes

№ п/п	Discipline section name	Lectures	Practical lessons	Independent work	Total hours
1.	Introduction		2	6	8
2.	Economic assessment of non-renewable resources		4	6	10
3.	Economic assessment of renewable resources		4	6	10

4.	The resource base of enterprises, methods of its assessment and analysis of the effectiveness of use		4	6	10
5.	Multifunctional resources and the specifics of their assessment in projects		2	10	12

6. Laboratory workshop (if available) - NO

7. Practical lessons; seminars

Nr	Discipline section	Subjects of practical classes (seminars)	Total hours
1.	Introduction	Methods for assessing natural resources in the world	1
2.	Economic assessment of non-renewable resources	Methods for calculating the cost of land resources	2
3	Economic assessment of renewable resources	Methods for calculating the cost of forestry resources	2
4	The resource base of enterprises, methods of its assessment and analysis of the effectiveness of use	Economic efficiency of energy and water conservation	2
5	Multifunctional resources and the specifics of their assessment in projects	Estimation of the role of pricing factors in determining the value of land plots	1

8. Material and technical base of the discipline:

An auditorium equipped with multimedia equipment and a personal computer with a standard package of office programs.

9. Information support of the discipline

When studying the discipline, traditional information technologies are used to present the theoretical part of the material by the teacher (PowerPoint presentation).

a) Software

MSWindows; MSOffice

b) databases, reference and search systems

[www.mnr.gov.ru](http://mnr.gov.ru) - site of the Ministry of Natural Resources of the Russian Federation;

<http://rpn.gov.ru/> - Federal Service for Supervision in the Sphere of Natural Resources

(Rosprirodnadzor);

www.ecoindustry.ru - site of the journal "Production Ecology";

www.unep.org - site of the United Nations Environment Program;

www.wwf.ru - site of the World Wildlife Fund.

<http://burondt.ru/> - website of the BAT Bureau - information on the introduction of standardization based on the best available technologies

http://www.mnr.gov.ru/activity/directions/zelenye_standarty/zelenye_standarty/?sphrase_id=124597 - information on the development, application and implementation of "green standards"

http://www.mnr.gov.ru/activity/directions/natsionalnyy_proekt_ekologiya/ - information on the progress of the National Project "Ecology"

10. Literature

Basic list

1. Khaustov A.P., Redina M.M. Rationing and reduction of environmental pollution. M.: Yurayt, 2017. -- 364 p. - Presented at the RUDN UNIBC and available on the website of the Yurayt publishing house at: https://biblio-online.ru/viewer/normirovanie-i-snizhenie-zagryazneniya-okruzhayuschey-sredy-432790?share_image_id=#page/1
2. Leikin Yu.A. "Fundamentals of environmental regulation: Textbook. M.: Publishing house "Forum", 2018

Additional list

- Ackermann T., Andersson G., Soder L. (2001): Distributed Generation: A Definition. In: *Electric Power System Research*, Vol. 57 (2001), pp. 195-204.
- Anderson W., White V., Finney A. (2010): 'You just have to get by': Coping with low incomes and cold homes. University of Bristol. <https://core.ac.uk/download/pdf/29025974.pdf>.
- Bashmakov (2009): Resource of energy efficiency in Russia: scale, costs, and benefits. *Energy Efficiency* 2, 369–386. www.mdpi.com/journal/sustainability. In: section 7.6.2 Climate Change 2014: Mitigation of Climate Change. Intergovernmental Panel on Climate Change. <http://www.ipcc.ch/report/ar5/wg3/>
- BlackRock (2017): *BlackRock. Black Rock Investment Stewardship engages on Climate Risk*. <https://www.blackrock.com/corporate/en-us/literature/market-commentary/how-blackrock-investment-stewardship-engages-on-climate-risk-march2017.pdf>
- Blok, K., Hofheinz, P., Kerkhoven, J. (2015): *The 2050 Energy Productivity and Economic Prosperity Index. How Efficiency Will Drive Growth, Create Jobs and Spread Wellbeing Throughout Society*. <https://www.ecofys.com/files/files/the-2015-energy-productivity-andeconomic-prosperity-index.pdf>
- Bloomberg New Energy Finance (2017): *New Energy Outlook 2017*. <https://about.bnef.com/new-energy-outlook/>
- Bondarak J. (2016): *Poland Coal Sector Update*. Presented at the Global Methane Initiative Coal Subcommittee Meeting 24 October 2016. https://www.unece.org/fileadmin/DAM/energy/se/pp/coal/cmm/11cmm_gmi.cs_oct2016/4_GMI_Poland_coal.pdf
- BPIE and i24c - Buildings Performance Institute Europe; Industrial Innovation for Competitiveness (2016): *Scaling up Deep Energy Renovation, Unleashing the Potential through Innovation and industrialization. Building Performance Institute of Europe and Industrial Innovation for Competitiveness*. <http://bpie.eu/publication/scaling-up-deep-energy-renovation/>
- Brunner K., Spitzer M., Christanell A. (2012): *Experiencing fuel poverty. Coping strategies of low-income households in Vienna/Austria*. <http://www.sciencedirect.com/science/article/pii/S0301421511009748>

11. Methodical instructions for students on mastering the discipline (module)

Independent work of students includes:

- individual study of theoretical material on the subject of the course (links to information sources are presented in the previous sections);
- study of additional material;
- preparation of abstracts on the topics specified in the program.

11.1. Independent study of additional theoretical material is carried out by students on an individual basis; the list of recommended information sources is given above.

11.2. Requirements for writing abstracts

Academic ethics, respect for copyright. In the first lesson, students are informed about the need to comply with the norms of academic ethics and copyright during their studies. In particular, information is provided:

- general information about copyright;
- citation rules;
- link formatting rules

All footnotes in the text are carefully checked and provided with “addresses”. It is not permissible to include in your work excerpts from the works of other authors without indicating this, to retell someone else's work close to the text without referring to it, to use other people's ideas without indicating the primary sources. This also applies to sources found on the Internet. You must specify the full site address. All cases of plagiarism must be excluded. If unjustified and incorrect borrowings are identified, the abstract is not accepted.

When preparing written works, the following must be submitted without fail: work plan; a list of used literature, drawn up in accordance with the current rules for the bibliographic description of used sources.

For the preparation of the abstract, only special relevant sources should be used. In addition to abstracts, the subject of which is related to the dynamics of any phenomena over many years, or the historical development of scientific views on any problem, sources should be used for a period of no more than 10 years.

The prepared essay should be presented at one of the classes in agreement with the teacher. Use of PowerPoint presentations (or those prepared using similar licensed or free software) is encouraged, but not required. The approximate time of the presentation is up to 15 minutes. The structure of the report and additional requirements for the quality of materials are determined by the chosen topic and are additionally discussed with the teacher.

12. Fund of appraisal funds for intermediate certification of students in the discipline (module) (developed in accordance with the requirements of the "Regulations for the formation of funds of appraisal funds", approved by order of the rector dated 05.05.2016 No. 420).

Department of Applied Ecology

APPROVED

at the meeting of the department

August 28, 2019, minutes No. 1

Head of the Department

_____ М.М. Redina

(подпись)

VALUATION FUND

ON THE EDUCATIONAL DISCIPLINE

ECONOMIC ASPECTS OF NATURAL RESOURCES MANAGEMENT

direction 05.04.05 "Ecology and nature management"

Program:

Economics of natural resources management

Qualification (degree) of the graduate –

Master of Ecology and Nature Management

Passport of the fund of assessment tools by discipline

Direction 05.04.6 «Экология и природопользование»:

Discipline: ECONOMIC ASPECTS OF NATURAL RESOURCES MANAGEMENT

Code Б1.В.03

12.1. Балльно-рейтинговая система оценки и характеристика шкалы оценивания

Rating assessment system and characteristics of the assessment scale

Балльно-рейтинговая система оценки и характеристика шкалы оценивания

Controlled competence code or part thereof Код контролируемой компетенции или ее части	Controlled discipline topic Контролируемая тема дисциплины	Forms of control ФОСы (формы контроля уровня освоения ООП)					Topic points Баллы темы
		Classroom work Аудиторная работа			Самостоятельная работа	Экзамен	
		Test / Тест	Test work Контрольная работа	Class work Работа на занятии	Документ seminar report		
UC-1 PC-8	Introduction	X		10			4
UC-1 PC-8	Economic assessment of non-renewable resources	X		12			4
UC-1 PC-8	Economic assessment of renewable resources	X		12			6
UC-1 PC-8	The resource base of enterprises, methods of its assessment and analysis of the effectiveness of use	X		10			8
UC-1 PC-8	Multifunctional resources and the specifics of their assessment in projects	X		12			10
	Exam Экзамен		15	56	15	14	

12.2 The maximum number of credits in the course is 3. At the same time, the following ratio is established between the number of points and the number of credits:

Points to credits ratio

Total points	Final assessment	Amount of credits
91	5	3

91-100	5	3
86 - 91	5 (B)	3
71-85	4 (C)	2
61-70	3+ (D)	1
51 - 60	3 (E)	1
21 - 51	2 (FX)	0
<21	2 (F)	0

6. Deciphering of grades is also accepted according to the specified document:

7. - A: "Excellent" - the theoretical content of the course has been fully mastered, without gaps, the necessary practical skills for working with the material learned have been formed, all the educational tasks provided for by the training program have been completed, the quality of their implementation was assessed by the number of points close to the maximum.

8. - B: "Very good" - the theoretical content of the course is mastered completely, without gaps, the necessary practical skills of working with the acquired material are basically formed, all the educational tasks provided for by the training program are completed, the quality of most of them is assessed by the number of points close to the maximum ...

9. - C: "Good" - the theoretical content of the course has been mastered completely, without gaps, some practical skills of working with the mastered material are not sufficiently formed, all the educational tasks provided for by the training program have been completed, the quality of performance of none of them has not been assessed with a minimum number of points, some types of tasks have been completed with mistakes.

10. - D: "Satisfactory" - the theoretical content of the course is partially mastered. but the gaps are not significant, the necessary practical skills to work with the acquired material are basically formed, most of the educational tasks provided for in the training program have been completed, some of the completed tasks may contain errors.

11. - E: "Mediocre" - the theoretical content of the course is partially mastered, some practical skills have not been formed, many of the educational tasks provided for by the training program have not been completed, or the quality of some of them is assessed by the number of points close to the minimum.

- FX: "Conditionally unsatisfactory" - the theoretical content of the course has been partially mastered, the necessary practical skills have not been formed, most of the educational tasks provided for by the training program have not been completed, or the quality of their implementation was assessed by the number of points close to the minimum; with additional independent work on the course material, it is possible to improve the quality of completing educational tasks.

- F: "Certainly unsatisfactory" - the theoretical content of the course has not been mastered, the necessary practical skills are not formed, all the completed study tasks contain gross errors, additional independent work on the course material will not lead to any significant improvement in the quality of the study tasks.

12.3 List of competencies and stages of their formation

Nr.	Code and name of competence	Preceding disciplines	Subsequent disciplines (groups of disciplines)
	Universal competencies		-

1	UC-1 Willingness to act in non-standard situations, to bear social and ethical responsibility for the decisions made	-	Management of environmental-economic risks Ecologic-economical aspects of environmental projects
Professional competencies (type of professional activity - research, control and expert, organizational and management)			
3	PC-8 the ability to organize and manage research and development and expert and analytical work using advanced knowledge in the field of environmental management	-	Research work Management of environmental-economic risks Ecologic-economical aspects of environmental projects

12.4. Typical control tasks or other materials necessary to assess knowledge, skills, skills and (or) experience of activities, characterizing the stages of the formation of competencies in the process of mastering the educational program

Questions to prepare for certification

1. Methods for assessing natural resources.
2. Natural resource potential: economic assessment methods
3. The resource base of enterprises, methods of its assessment and analysis of the efficiency of use.
4. The concept of the natural intensity of technological processes. Possibilities of regulating the natural intensity.
5. Environmental and economic damages as "negative resources": assessment methods.
6. The principles of the "green economy" and the possibilities of their practical implementation at enterprises.
7. Cadastral assessments in the system of economic assessments of natural resources. Principles of cadastral estimates. Regulatory framework and features of its application.
8. Economic evaluation of projects: environmental and economic components.
9. Methods for the economic evaluation of projects in the field of resource use. Criteria and indicators. Normative and methodological support of assessments
10. Alternative estimates of natural resources.
11. Multifunctionality of resources and problems of ensuring the efficiency of natural resources use.
12. Modeling of processes in ecological and economic systems.
13. Common management models in the field of resource use and sustainable development. Formation of management models, definition of goals and objectives.
14. Assessment of management efficiency: criteria, indicators, algorithms.

12.4. Methodological materials defining the procedures for assessing knowledge, skills, and activity skills, characterizing the stages of the formation of competencies).

The assessment of knowledge, skills and abilities is carried out using the components of the WCF presented in paragraphs. 12.1-12.34, in accordance with the sequence of acquisition of competencies indicated in table. p. 12.2.

The program is compiled in accordance with the requirements of the ES HE RUDN / FGOS HE.

Developers:

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