

**Федеральное государственное автономное образовательное учреждение  
высшего образования «Российский университет дружбы народов»  
имени Патриса Лумумбы**

**Институт экологии**

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(наименование основного учебного подразделения (ОУП)-разработчика программы аспирантуры)

**РАБОЧАЯ ПРОГРАММА ДИСЦИПЛИНЫ**

**Regulation of natural system quality / Нормирование и качества  
окружающей среды**

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(наименование дисциплины/модуля)

**Научная специальность:**

1.5 Биологические науки

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(код и наименование научной специальности)

**Освоение дисциплины ведется в рамках реализации программы аспирантуры:**

1.5.15 Ecology: Modern environmental studies

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(наименование программы аспирантуры)

## 1. THE PURPOSE OF MASTERING THE DISCIPLINE

In-depth study of the theoretical foundations of environmental regulation, practice development and application of environmental standards and modern trends of development of valuation as a tool for environmental management.

Objectives of the course:

- Familiarize PhD students with the theoretical foundations of systems stability theory;
- Familiarize the PhD students with the development of environmental regulation system in Russia and abroad, including the presentation of the main areas of standardization and effectiveness;
- Study of foreign experience in the development and practical application of environmental regulations;
- Familiarize the PhD students with the valuation of risks in the sphere of natural resources, geo-ecology and environmental safety;
- The development of PhD students' practical competence in the analysis and development of environmental standards;
- Familiarize the PhD students with the establishment of corporate systems of environmental regulation.

## 2. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

### 3. VOLUME OF DISCIPLINE AND TYPES OF EDUCATIONAL WORK

The total labor intensity of the discipline "Regulation of natural systems quality" is 3 credit units.

Table 3.1. Types of educational work by periods of mastering the postgraduate program

Type of study work	TOTAL, acc.	Course			
		1	2	3	4
Contact work, acc.					
including:					
Lectures (LC)	30	30			
Laboratory work (LW)					
Practical/seminar sessions (SW)	30	30			
Independent work of students, acc.	48	48			
Control, acc.					
The total complexity of the discipline	ак.ч.				
	зач.ед.	offset	off- set		

## 4. CONTENT OF THE DISCIPLINE

Table 4.1. The content of the discipline (module) by type of educational work

<b>Name of the section of the discipline</b>	<b>Content of the section (topic)</b>	<b>Type of educational work</b>
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	LC, SW
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.	LC, SW
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.	LC, SW
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.	LC, SW
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.	LC, SW
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.	LC, SW
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.	LC, SW
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.	LC, SW
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.	LC, SW

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.	LC, SW
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## 5. LOGISTICS AND TECHNICAL SUPPORT OF THE DISCIPLINE

Table 5.1. Logistics of discipline

Cabinet type	Cabinet equipment	Specialized educational / laboratory equipment, software and materials for mastering the discipline (if necessary)
Lecture	An auditorium for lecture-type classes, equipped with a set of specialized furniture; board (screen) and technical means of multimedia presentations.	The individual workplace of a postgraduate student must be equipped with a personal device with Internet access. A mobile phone is not a device capable of technically providing access to all information resources and services for mastering modules. Computer classes/audiences should be provided with multimedia and computer equipment with Internet access.
Seminar	An auditorium for conducting seminar-type classes, group and individual consultations, current control and intermediate certification, equipped with a set of specialized furniture and technical means for multimedia presentations.	
computer class	Computer class for conducting classes, group and individual consultations, current control and intermediate certification, equipped with personal computers (in the amount of ____ pcs), a board (screen) and technical means of multimedia presentations.	
For independent work of students	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 the EIOS.	

## 7. EDUCATIONAL-METHODOLOGICAL AND INFORMATION SUPPORT OF THE DISCIPLINE

a) Basic literature:

1) **Stability of natural systems - Theory and practice Article (PDF Available)** in [Miscellanea Geographica](#) 13:11-19 · January 2008

[https://www.researchgate.net/publication/276418335\\_Stability\\_of\\_natural\\_systems\\_Theory\\_and\\_practice](https://www.researchgate.net/publication/276418335_Stability_of_natural_systems_Theory_and_practice)

2) Measuring Regulatory Performance EVALUATING THE IMPACT OF REGULATION AND REGULATORY POLICY By Cary Coglianese [https://www.oecd.org/gov/regulatory-policy/1\\_coglianese%20web.pdf](https://www.oecd.org/gov/regulatory-policy/1_coglianese%20web.pdf)

*б) additional literature:* 1. Александрова Л.В и др. Многокритериальные географо-экологические оценки состояния и устойчивости природных и урбанизированных систем/ Под ред. В.В.Дмитриева и Н.В. Хованова. – СПб.: Изд-во СПбГУ, 2000. – 275 с.

2. Виртуальный тренажерный комплекс по экологической безопасности/ Под ред. В.Д. Толмачева и А.П. Хаустова. – М.: Изд-во МИЭЭ, 2010.
3. Воробейчик Е.Л., Садыков О.Ф., Фарафонов М.Г. Экологическое нормирование техногенных загрязнений наземных экосистем (локальный уровень). – Екатеринбург: Наука, 1994. – 280 с.
4. Дмитриев В.В., Фруммин Г.Т. Экологическое нормирование и устойчивость природных систем: Учеб. пособие. – СПб.: Наука, 2004. – 294 с.
5. Глазовская М.А. Методологические основы оценки эколого-геохимической устойчивости почв к техногенным воздействиям. – М.: Изд-во МГУ, 1997. – 102 с.
6. Зейферт Д.В., Бикбулатов И.Х., Маликова Э.М., Кадыров О.Р. Стандарты качества окружающей среды в Российской Федерации: Учеб. пособие. – Уфа: РИО Баш ГУ, 2003. – 274 с.
7. Лукьянчиков Н.Н., Потравный И.М. Экономика и организация природопользования: учебник для вузов. – М.: ЮНИТИ-ДАНА, 2007. – 591 с.
8. Нефть и окружающая среда Калининградской области/ Т. I. Суша/ Под ред. М.Ю. Каджояна и Н.С. Касимова. – М. – Калининград: Янтарный сказ, 2008. – 360 с.
9. Опекунов А.Ю. Экологическое нормирование и оценка воздействия на окружающую среду: Учеб. пособие. – СПб.: Изд-во СПбГУ, 2006. – 261 с.
10. Природопользование, охрана окружающей среды и экономика. Теория и практикум: Учеб. пособие./ Под ред. А.П. Хаустова. – М.: Изд-во РУДН, 2009. – 614 с.
11. Тихомиров Н.П., Потравный И.М., Тихомирова Т.М. Методы анализа и управления эколого-экономическими рисками: учеб. пособие для вузов. – М.: ЮНИТИ-ДАНА, 2003. – 350 с.
12. Хаустов А.П. Основы нормирования техногенных нагрузок на подземную гидросферу: Учеб. пособие. – М.: Изд-во РУДН, 2006. – 99 с.
13. Хаустов А.П., Редина М.М. Нормирование антропогенных воздействий и оценка природоёмкости территорий: Учеб. пособие. – М.: Изд-во РУДН, 2008. – 282 с.
14. Хаустов А.П., Редина М.М. Ресурсология и менеджмент природных ресурсов: Учеб. пособие. – М.: Изд-во РУДН, 2008. – 434 с.
15. Хаустов А.П. Устойчивость подземной гидросферы и основы экологического нормирования. – М.:ГЕОС, 2007 – 175 с.
16. Хаустов А.П., Редина М.М. Управление природопользованием. – М.: Высшая школа, 2006. – 324 с.
17. Шуйский В.Ф., Максимова Т.В., Петров Д.С. Изоболный метод оценки нормирования многофакторных антропогенных воздействий на пресноводные экосистемы по состоянию макрозообентоса. – СПб.: МАНЭБ, 2004. – 304 с.

#### **Internet sources:**

- [www.mnr.gov.ru](http://www.mnr.gov.ru) – Website of the Ministry of Natural Resources;
- [control.mnr.gov.ru](http://control.mnr.gov.ru) – The Federal Service for Supervision of Natural Resources (Rosprirodnadzor);
- <http://ecobez.narod.ru/ecosafety.html> – Information materials on the management of environmental safety;
- [www.dist-cons.ru/modules/Ecology](http://www.dist-cons.ru/modules/Ecology) – information materials on environmental support economic activity;
- [www.ecoindustry.ru](http://www.ecoindustry.ru) – Website of the journal "Ecology of production";
- [www.hse-rudn.ru](http://www.hse-rudn.ru) – Information materials on the management of labor protection, industrial and environmental safety;
- [www.unep.org](http://www.unep.org) – site programs of the United Nations Environment Programme; [www.wwf.ru](http://www.wwf.ru) – the site of the World Wildlife Fund.

Resources of the information and telecommunications network "Internet":

1. ELS of RUDN University and third-party ELS, to the materials of which graduate students of the university have access on the basis of concluded agreements:

- RUDN Electronic Library System - RUDN EBS <http://lib.rudn.ru/MegaPro/Web>
- ELS "University Library Online" <http://www.biblioclub.ru>
- EBS - "Educational Platform Urayt" <http://www.biblio-online.ru>
- ELS "Student Consultant" [www.studentlibrary.ru](http://www.studentlibrary.ru) ,

integrated into ELS RUDN University

- EBS "Lan" <http://e.lanbook.com/>
- EBS "Troitsky Most",
- EBS BOOKUP - professional medical literature <http://books-up.ru/>

2. Databases\* \* information about universal and specialized information bases for selection and inclusion in the program must be taken from the website of the UNIBC (NB), link to the section <https://lib.rudn.ru/8>

- SCOPUS - scientometric, abstract database with organized access to open access publications <http://www.elsevierscience.ru/products/scopus/>
- WOS - scientometric, abstract database with organized access to open access publications [webofscience.com](http://webofscience.com)
- Google Academy (English Google Scholar) - <https://scholar.google.ru/>
- NEB, RSCI on the platform eLibrary.ru
- <https://elibrary.ru/>
- RUDN University repository - <https://repository.rudn.ru/>

3. search engines:

- electronic fund of legal and normative-technical documentation <http://docs.cntd.ru/>
- Yandex search engine <https://www.yandex.ru/>
- Google search engine <https://www.google.ru/>

## **8. EVALUATION MATERIALS AND SCORE-RATING SYSTEM FOR ASSESSING THE LEVEL OF FORMATION OF COMPETENCES IN THE DISCIPLINE**

Evaluation materials and a point-rating system for assessing the development of the discipline are presented in the Appendix to this Work Program of the discipline.

**DEVELOPERS:**

professor of the Department of

Environmental Safety and Product Quality Management



Redina MM.

Должность, БУП

Подпись

Фамилия И.О.

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**HEAD OF BTU**

Department of Environmental  
Safety and Product Quality Man-  
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Наименование БУП

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Подпись

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