Federal State Autonomous Educational Institution of Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
NAMED AFTER PATRICE LUMUMBA

Agrarian and Technological Institute

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

COURSE SYLLABUS

Scientific research

course title

Recommended by the Didactic Council for the Education Field of:

35.03.09 Landscape architecture
Management and design of urban green infrastructure

field of studies / speciality code and title

The course instruction is implemented within the professional education programme of higher education:

Landscape architecture

higher education programme profile/specialisation title

1. COURSE GOAL(s)

The purpose of the discipline is to study the phytotechnologies for remediation and improvement of urban environment.

2. REQUIREMENTS FOR LEARNING OUTCOMES

Learning the discipline «Scientific research» is aimed at the formation of students of the following competencies:

Table 2.1. The list of competencies formed in the development of the discipline (the results of the discipline)

Code	Competence	Indicators of competence achievement (within the discipline)
UK-1	Student is able to search, critically analyze problem situations based on a systematic approach, to develop a strategy of action.	UK-1.1 Student is able to apply systematization to solve tasks; UK-1.2 Student is able to search and analyze information.
UK-4	Student is able to use modern communication technologies in the state language of the Russian Federation and foreign language(s) for academic and professional interaction.	UK-4.1 Student is able to prepare all necessary project documentation in Russian and foreign languages; UK-4.2 Student is able to communicate on the project in Russian and foreign languages;
UK-5	Student is able to analyze and take into account the diversity of cultures in the process of intercultural interaction.	UK-5.1 Student is able to understand the features of the social organization of society, the specifics of the mentality and worldview of the cultures of the West and East; UK-5.2 Student is able to overcome the cultural barrier, perceiving intercultural differences.
UK-6	Student is able to identify and implement the priorities of his/her own activities and ways to improve them based on self-assessment.	UK-6.1 Student is able to plan their life activities for the period of study in an educational organization; UK-6.2 Student is able to determine the tasks of self-development and professional growth, distribute them into long-term and short-term ones with justification of their relevance and determination of the necessary resources.
GPC-1	Student is able to analyze modern problems of science and production, solve complex (non-standard) tasks in professional activities.	GPC-1.1 Student is able to solve complex (non-standard) tasks in professional activities; GPC-1.2 Student is able to analyze modern problems of science and production;
GPC-2	Student is able to impart professional knowledge using modern pedagogical techniques.	GPC-2.1 Capable of transferring professional knowledge;

Code	Description of the competence		
GPC-3	Student is able to develop and implement new effective technologies in professional activity.	GPC-3.1 Student is able to implement new effective technologies in professional activities; GPC-3.2 Student is able to develop new effective technologies in professional activities.	
GPC-4	Student is able to conduct scientific research, analyze results, and prepare reporting documents.	GPC-4.1 Capable of conducting scientific research; GPC-4.2 Student is able to prepare reporting documentation;	
GPC-5	Student is able to carry out a feasibility study of projects in professional activities.	GPC-5.1 Student is able to carry out economic feasibility study of projects; GPC-5.2 Student is able to carry out feasibility study of projects.	
GPC-6	Student is able to manage teams and organize production processes.	GPC-6.1 Ability to organize production processes; GPC-6.2 Ability to manage the team.	
PC-6	Willingness to organize urban monitoring and inventory work on landscape architecture sites, and to compile an inventory of green spaces.	PC-6.1 Student is able to carry out green space certification on project sites; PC-6.2 Student is able to carry out environmental engineering surveys at the site.	
PC-16	Willingness to acquire new knowledge and conduct applied research in the field of landscape architecture.	PC-16.1 Student is able to acquire new knowledge; PC-16.2 Student is able to conduct applied research.	

GPC-2.2 Student is able to transfer professional knowledge using information technology.

3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The discipline "Scientific research" refers to the variable component of (B1) block B1 of the higher educational programme curriculum.

In the frame of the programme curriculum students also learning other disciplines and/or practices that contribute to the achievement of the planned results of acquiring skills in the discipline Scientific research.

Table 3.1. List of components of the OP VO, contributing to the achievement of the planned results of acquiring skills in the discipline

Code	Description of the competence	Previous disciplines / modules, practices*	Subsequent disciplines/modules, practices*
UK-1	Student is able to search, critically analyze problem situations based on a systematic approach, to develop a strategy of action.	-	Landscape engineering and nature-based solution; Principles of remote sensing and modeling; Advances in environmental monitoring; Phytopathology and Plant Protection; Landscape

		-	planning and sustainable development.
UK-4	Student is able to use modern communication technologies in the state language of the Russian Federation and foreign language(s) for academic and professional interaction.	-	Phytopathology and Plant Protection; Foreign Language; Landscape planning and sustainable development.
UK-5	Student is able to analyze and take into account the diversity of cultures in the process of intercultural interaction.	-	Landscape engineering and nature-based solution; Principles of remote sensing and modeling; Advances in environmental monitoring; Phytopathology and Plant Protection; Landscape planning and sustainable development.
UK-6	Student is able to identify and implement the priorities of his/her own activities and ways to improve them based on self-assessment.	-	Landscape engineering and nature-based solution; Principles of remote sensing and modeling; Advances in environmental monitoring; Phytopathology and Plant Protection; Landscape planning and sustainable development.
GPC-1	Student is able to analyze modern problems of science and production, solve complex (non-standard) tasks in professional activities.	-	Principles of remote sensing and modeling; Phytopathology and Plant Protection; Landscape planning and sustainable development.
GPC-2	Student is able to impart professional knowledge using modern pedagogical techniques.	-	Principles of remote sensing and modeling; Phytopathology and Plant Protection; Landscape planning and sustainable development.
GPC-3	Student is able to develop and implement new effective technologies in professional activity.	-	Landscape engineering and nature-based solution; Phytopathology and Plant Protection; Landscape planning and sustainable development.
GPC-4	Student is able to conduct scientific research, analyze results,	-	Landscape engineering and nature-based solution; Phytopathology and Plant Protection; Landscape

	and prepare reporting documents.		planning and sustainable development.
GPC-5	Student is able to carry out a feasibility study of projects in professional activities.	-	Landscape engineering and nature-based solution; Phytopathology and Plant Protection; Landscape planning and sustainable development.
GPC-6	Student is able to manage teams and organize production processes.	-	Landscape planning and sustainable development.
PC-6	Willingness to organize urban monitoring and inventory work on landscape architecture sites, and to compile an inventory of green spaces.	-	-
PC-16	Willingness to acquire new knowledge and conduct applied research in the field of landscape architecture.	-	Landscape planning and sustainable development.

4. COURSE WORKLOAD

The total workload of the course is 6 credits (216 academic hours).

5. COURSE CONTENTS

Table 5.1. Content of the discipline (module) by type of educational work

Modules	Contents (topics, types of practical activities)	Workload, academic hours
Communicating Science	— The ABC of science communication — Scientific versus popular science writing	7
Sections of a Scientific Paper	— Major headings — Tables and Figures	7
Other Types of Scientific Writing	— Literature review — Conference paper and abstract	7
Research proposal	— Getting Started in Writing — Making an outline facilitates writing — Use a computer for your writing	8
Improving Your Writing	— How to make your writing easier to read — Do I or don't I? — Writing correctly	8
Writing mathematics	— Writing numbers, dates and time — Literature Searching and Referencing — Search strategies	8
Manual searching	— Recording your search — Referencing published work — Referencing web addresses — Copyright	9
Getting a Paper into Print	— Preparing your manuscript for submission — Authorship and addresses — Submission	7
Editor's and referees' reports	— Author proofs — Oral Presentation and Visual Displays — Planning the oral presentation	7
Independent work of students.		114
Control (exam/test with assessment).		34
	TOTAL:	**216**

6. COURSE EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

The infrastructure and technical support necessary for the course implementation include: certified soil-ecological laboratory, individual consultations, routine monitoring and interim certification, equipped with a set of specialized furniture and equipment. (rooms 203, 418). Specialized educational/laboratory equipment includes Draper Diplomat 213x213 83"

tripod screen, a workstation based on a complete system unit and a monitor for working with graphical applications. Model AG_PC Axiom Group/Intel Core I3 Processor 8 Cooperative memory Crucial by Micron DDR4 8SV*2;Motherboard PRIME B360-PLUS; MoHHTop Samsung 23.5, Software ArchiCAD 15, AutoCAD12, SketchUp, QGIS 2.10 (Quantum GIS).

7. RESOURCES RECOMMENDED FOR COURSE

The main literature:

1. D. M. Diez, C.D. Barr, M. Cetinkaya-Rundel . OpenIntro Statistics. 2014. openintro.org
2. D. Borcard, F. Gillet, P. Legendre. Numerical Ecology with R. 2011.
3. Kabacoff R.I. R In Action. Data analysis and graphics with R. Second edition. 2015.
4. Logan M. Biostatistical design and analysis using R. A practical guide. 2010.
5. Quick J.M., Statistical Analysis in R: Beginners Guide. 2010. …

Additional literature:
1. Mastitsky S.E., Shitikov V.K. Statistical analysis and visualization of data with R. 2014. E-book, access address: http://r-analytics.blogspot.com (in Russian)

E-materials:
Resources of information and telecommunication network "Internet":
1. RUDN e-library:
RUDN electronic library system - RUDN EBS http://lib.rudn.ru/MegaPro/Web
University Library Online Libraries http://www.biblioclub.ru
Yurite electronic library system http://www.biblio-online.ru
Student's Consultant electronic library system www.studentlibrary.ru
Lan LBS http://e.lanbook.com/ 2.

2. Databases and search engines:
NCBI: https://p.360pubmed.com/pubmed/
RUDN Bulletin: access mode from the RUDN territory and remotely http://journals.rudn.ru/
Elibrary.ru scientific library: access via RUDN IP-addresses at: http://www.elibrary.ru/defaultx.asp
ScienceDirect (ESD), FreedomCollection, Cell Press of Elsevier Publishing House. There is remote access to the database, access via RUDN IP-addresses (or remotely via individual login and password).
Google Scholar is a free search engine for full-text scientific publications of all formats and disciplines. Indexes the full texts of scientific publications. Access mode: https://scholar.google.ru/
Scopus is a scientometric database of Elsevier Publishing House. Access to the platform is via IP-addresses of PFUR or remotely. http://www.scopus.com/

Educational and methodological materials for students' individual work for acquiring skills discipline/module*:
1. Theoretical and practical information in the presentations «Scientific research»
2. Practical tasks
* - all educational and methodical materials for students' individual work are placed in TUIS

8. ASSESSMENT TOOLKIT AND GRADING SYSTEM* FOR EVALUATION OF STUDENTS' COMPETENCES LEVEL AS COURSE RESULTS

The assessment toolkit and the grading system* to evaluate the level of competences (competences in part) formation as the course results are specified in the Appendix to the course syllabus.

* The assessment toolkit and the grading system are formed based on the requirements of the relevant local normative act of RUDN University (regulations / order).

DEVELOPERS:

Associate Professor, department of landscape planning and sustainable ecosystems		V. I. Vasenev
position, educational department	signature	name and surname.

HEAD OF EDUCATIONAL DEPARTMENT:

Director, department of landscape planning and sustainable ecosystems		E. A. Dovletyarova
educational department	signature	name and surname.

**HEAD OF
HIGHER EDUCATION PROGRAMME:**

Associate Professor, department of landscape planning and sustainable ecosystems		V. I. Vasenev
position, educational department	signature	name and surname