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

Agrarian and Technological Institute

(name of the main educational unit-developer of the EP HE)

PROGRAM OF THE DISCIPLINE

Scientific writing skills

(name of the discipline/module)

Recommended by the ISSN for the direction of training/specialty:

35.04.09 Landscape architecture

Management and design of urban green infrastructure

(code and name of the direction of training/specialty)

The development of the discipline is carried out within the framework of the implementation of the main professional educational program of higher education:

Landscape architecture

(name (profile/specialization) of the EP HE)

2022

1. THE AIM OF MASTERING THE DISCIPLINE

The aim of discipline «Scientific writing skills» is to provide basic theoretical knowledge and practical skills in scientific writing, data collecting, processing and presenting research results in the sphere of landscape architecture

.

2. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

The development of the discipline **«Scientific writing skills»** is aimed at the formation of the following competencies among students:

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

Code	Competency	**Indicators of competence achievement** (within the framework of this discipline)
UC-1	Student is able to search, critically analyze problem situations based on a systematic approach, and develop a strategy for action	UC1.1 student is able to apply systematization to solve tasks; UC-1.2 Student is able to search and analyze information;
UC -3	Student is able to organize and manage the work of the team, developing a team strategy to achieve the goal	UC-3.1 Student is able to organize team work on the project; UC-3.2 student is able to interact with the executive authorities to coordinate all stages of design;
UC-5	Student is able to analyze and take into account the diversity of cultures in the process of intercultural interaction	UC-5.1 Able to overcome cultural barriers by perceiving intercultural differences UC-5.2 Student is able to overcome the cultural barrier, perceiving cross-cultural differences;
UC-6	Student is able to determine and implement the priorities of his own activities and ways to improve it based on self-assessment	UC-6.1 "Student is able to plan his life activities for the period of study in an educational organization"; UC6.2 Student is able to determine the tasks of self-development and professional growth, distribute them for long-medium- and short-term with justification of their relevance and determination of the necessary resources;
GPC-1	Ability to analyze modern problems of science and production, solve complex (non-standard) tasks in professional activity	GPC-1.1 Ability to solve complex (non-standard) tasks in professional activities GPC-1.2 Ability to analyze modern problems of science and production
GPC-2	Student is able to transfer professional knowledge using modern pedagogical techniques;	GPC-2.1 Student is able to transfer professional knowledge; GPC-2.2 Student is able to transfer professional knowledge using information technology;

PC-18	Ability to prepare scientific and technical reports, reviews, publications based on the results of research in the field of landscape architecture	PC-18.1 Ability to prepare scientific articles, reports on ongoing research PC-18.2 Ability to develop work plans and programs for scientific research in the field of landscape architecture

3. THE PLACE OF DISCIPLINE IN THE STRUCTURE OF THE EP HE

The discipline **" Scientific writing skills "** belongs to the free-selection part of the block B1 of the EP HE.

Within the framework of the educational program, students also master other disciplines and/or practices that contribute to achieving the planned results of mastering the discipline « **Scientific writing skills** ».

Table 3.1. The list of the components of the educational program that contribute to the achievement of the planned results of the development of the discipline

Code	**Competency**	**Previous disciplines/modules, practices***	**Subsequent disciplines/modules, practices***
UC-1	Student is able to search, critically analyze problem situations based on a systematic approach, and develop a strategy for action	*Data analysis and statistics, International regulation in city planning and environmental protection, Phytopathology and Plant Protection, Scientific writing skills*	*Landscape planning and sustainable development, Landscape engineering and nature-based solution, Green infrastructure urban climate and carbon neutrality, Principles of remote sensing and modeling, Advances in environmental monitoring, Research planning*
UC -3	Student is able to organize and manage the work of the team, developing a team strategy to achieve the goal	*Data analysis and statistics, International regulation in city planning and environmental protection, Phytopathology and Plant Protection, Scientific writing skills, Urban ecology*	*Landscape planning and sustainable development, Landscape engineering and nature-based solution, Green infrastructure urban climate and carbon neutrality, Principles of remote sensing and modeling, Advances in environmental monitoring, Research planning*
UC-5	Student is able to analyze and take into account the diversity of cultures in the process of intercultural interaction	*Data analysis and statistics, International regulation in city planning and environmental protection, Phytopathology and Plant Protection, Scientific writing skills*	*Landscape planning and sustainable development, Landscape engineering and nature-based solution, Green infrastructure urban climate and carbon neutrality, Principles of remote sensing and modeling, Advances in environmental monitoring, Research planning*
UC-6	Student is able to determine and implement the priorities of his own	*Data analysis and statistics, International regulation in city planning*	*Landscape planning and sustainable development, Landscape engineering and*

	activities and ways to improve it based on self-assessment	*and environmental protection, Phytopathology and Plant Protection, Scientific writing skills, Urban ecology*	*nature-based solution, Green infrastructure urban climate and carbon neutrality, Principles of remote sensing and modeling, Advances in environmental monitoring, Research planning*
GPC-1	Ability to analyze modern problems of science and production, solve complex (non-standard) tasks in professional activity	*Data analysis and statistics, International regulation in city planning and environmental protection, Phytopathology and Plant Protection*	*Landscape planning and sustainable development, Principles of remote sensing and modeling, Advances in environmental monitoring, Research planning*
PC-10	Readiness to manage the objects of landscape architecture in the field of their functional use, protection and conservation	*Phytopathology and Plant Protection*	*Landscape planning and sustainable development, Landscape engineering and nature-based solution, Green infrastructure urban climate and carbon neutrality*

* - filled in in accordance with the matrix of competencies and SC EP HE

4. SCOPE OF DISCIPLINE AND TYPES OF ACADEMIC WORK

The total labor intensity of the discipline **" Scientific writing skills "** is 6 credits.

*Table 4.1. Types of educational work by periods of mastering the OP in for **FULL-time** education*

Type of educational work		**TOTAL,** ac.h	**Semesters**			
					3	4
Contact work, ac.h		**64**	**34**	**30**		
Including:						
Lectures (**LC**)		37			17	10
Laboratory works *(***LW***)*		37			17	20
Practical/seminar classes (**SC**)						
Independent work of students, ac.h		101			50	51
Control (exam/test with assessment), ac.h		51			24	27
Total labor intensity of the discipline	**216**	**216**			**108**	**108**
	credits	**6**				

5. CONTENT OF THE DISCIPLINE

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 educational work***
1. Development of the scientific picture of the world	1.1. Stages of science development	**LC**

1. Development of the scientific picture of the world	1.2. Evolutionary and revolutionary models of science development	**LW**
2. Methodology of scientific research	2.1 Scientific observation	**LC**
2. Methodology of scientific research	2.2 Experiment	**LW**
2. Methodology of scientific research	2.3 Models and modeling	**LC**
3. Introduction into descriptive statistics	3.1 Measuring scales: ordinal, integral and ratio scales, continuous and discrete variables	**LC**
3. Introduction into descriptive statistics	3.2 Sample. Representativeness of sample	**LW**
3. Introduction into descriptive statistics	3.3 Mean, range, variance, coefficient of variance, stand deviation	**LC**
4. Data analysis and prediction	4.1 Confident interval. P-level	**LC**
4. Data analysis and prediction	4.2 T statistics and t-test	**LW**
4. Data analysis and prediction	4.3 Correlation (Pearson and Spearmen correlation coefficients)	**LC**
4. Data analysis and prediction	4.4 Regression (multiple, linear/ non-linear regression)	**LW**
5. Scientific writing: thesis, publication, monograph	5.1 Conference thesis	**LC**
5. Scientific writing: thesis, publication, monograph	5.2 Scientific paper	**LW**
5. Scientific writing: thesis, publication, monograph	5.3 Master and PhD thesis	**LW**
6. Visualization of research results – from tables towards GIS	6.1 Approaches to visualize scientific results	**LC**
6. Visualization of research results – from tables towards GIS	6.2 Tables: structural elements and design rules	**LW**
6. Visualization of research results – from tables towards GIS	6.3 Graphical visualization of research results	**LW**
7. Business in science	7.1 International scientific community	**LC**
7. Business in science	7.2 Commercialization of scientific results. Sources of research funding	**LW**
7. Business in science	7.3 National and international grants and programs. Scientific foundations	**LW**

* - it is filled in only by **FULL–time** education: LC – lectures; LW – laboratory work; SC - seminars.

6. MATERIAL AND TECHNICAL SUPPORT OF THE DISCIPLINE

Table 6.1. Material and technical support of the discipline

Audience type	**Equipping the audience**	**Specialized educational/laboratory equipment, software and materials for the development of the discipline (if necessary)**
Specialized audience	An auditorium for laboratory work, individual consultations, routine monitoring and interim certification, equipped with a set of specialized furniture and equipment. (audiences 203, 418)	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), Certified soil-ecological lab
For independent work of students	An auditorium for laboratory work, individual consultations, routine monitoring and interim certification, equipped with a set of specialized furniture and equipment. (audiences 203, 418)	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)

* - the audience for independent work of students is called **MANDATORY**!

7. EDUCATIONAL, METHODOLOGICAL AND INFORMATIONAL SUPPORT OF THE DISCIPLINE

Basic literature:

Printed publications:

1). Borovikov, V., 2003. Art of computer data analysis. Piter. Saint-Petersburg.

2). D.M. Diez, C.D. Barr and M. Centinkaya-Rundel OpenIntro Statistics Second edition. Second Edition. Current Printing: July 2014..

3). Aller L., T. Bennett, J. H. Lehr, R. J. Petty, and G. Hackett. 1987. DRASTIC: A standardized system for evaluating ground water pollution potential using hydrogeological settings. EPA/600/2-87/035. Washington, D.C.: Environmental Agency.

4). Bailey, T. C., and A. C. Gatrell. 1995. Interactive spatial data analysis. Harlow, UK: Longman.

5). C-P. Pifo. Statistica. Hockenheim. 2011.

1. ***Electronic and printed full-text materials:*** Batty, M. J. 1997. The computable city. International Planning Studies 2: 155–73.
2. Batty, M. J., and P. A. Longley. 1994. Fractal cities: A geometry of form anfunction. San Diego, Calif.: Academic Press.
3. Benenson, I. 2004. Agent-based modeling: From individual residential to urban residential dynamics. In Spatially integrated social science, ed. M. Goodchild and D. J. Janelle, 67–94. New York: Oxford University Press.
4. Berger T. Agent-based spatial models applied to agriculture: a simulation tool for technology diffusion, resource use changes and policy analysis. 2001. Agricultural Economics. # 25. P. 245–260.
5. Peuquet, D. 2002. Representations of space and time. New York: Guilford.
6. Tomlin, C. D. 1990. Geographic information systems and cartographic modeling. Englewood Cliffs, N.J.: Prentice Hall.
7. Worboys, M. F., and M. Duckham. 2004. GIS: A computing perspective. New York: Taylor and Francis.
8. Zeiler, M. 1999. Modeling our world: The ESRI guide to geodatabase design. Redlands, Calif.: ESRI Press.

…

Additional literature:

Electronic and printed full-text materials:

1. Carey, G. F., ed. 1995. Finite element modeling of environmental problems: Surface and subsurface flow and transport. New York: John Wiley and Sons.
2. Crosier, S. J., M. F. Goodchild, L. L. Hill, and T. R. Smith. 2003. Developing an infrastructure for sharing environmental models. Environment and Planning B: Planning and Design 30: 487–501.
3. Dibble, C., and P. G. Feldman. 2004. The GeoGraph 3D Computational Laboratory: network and terrain landscapes for RePast. Journal of Artificial Societies and Social Simulation 7(1). Available: jasss.soc.surrey.ac.uk/ 7/1/7.html.
4. Engelen G., White R., De Nij T. Environment Explorer: Spatial Support System for the Integrated Assessment of Socio-Economic and Environmental Policies in the Netherlands. 2003. Integrated Assessment. V. 4, #. 2. P. 97–105..
5. Goodchild M.F. GIS and modeling overview. In: GIS, Spatial Analysis and Modeling. Maguire D.J. , Batty M., Goodchild M.F. (Eds). ESRI Press, Redlands. P. 2-17.
6. Goodchild, M. F., and J. Proctor. 1997. Scale in a digital geographic world. Geographical and Environmental Modeling 1: 5–23.
7. Goodchild, M. F., B. O. Parks, and L. J. Steyaert. 1993. Environmental modeling with GIS. New York: Oxford University Press.

Resources of the Internet information and telecommunication network:

Open statistic software www.r-project.org
Statistica manuals www.statsoft.ru
Open GIS software www.qgis.com
Science Direct: http://www.sciencedirect.com
EBSCO: http://search.ebscohost.com
Springer/Kluwer: http://www.springerlink.com
Tailor & Francis: http://www.informaworld.com

Data bases and survey systems
GISLAB: http://www.gis-lab.info
Google Earth Engine https://explorer.earthengine.google.com/#workspace
USGS Earth Explorer https://earthexplorer.usgs.gov/
Copernicus Global Land Service https://land.copernicus.eu/global/products/lc
Global Soil Map and Database https://soilgrids.org/

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

1. Workbook on the discipline « **Scientific writing skills** ».
2. Methodological guidelines for students on the development of the discipline « **Scientific writing skills** »

* - all teaching materials for independent work of students are placed in accordance with the current procedure on the discipline page in the **TUIS**!

8. EVALUATION MATERIALS AND A POINT-RATING SYSTEM FOR ASSESSING THE LEVEL OF COMPETENCE FORMATION IN THE DISCIPLINE

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 **" Scientific writing skills "** are presented in the Appendix to this Work Program of the discipline.

* - EM and PRS are formed on the basis of the requirements of the relevant local regulatory act of the RUDN.

DEVELOPERS:

Associate Professor of the Department of Landscape Design and Sustainable Ecosystems		V.I. Vasenev
Position, BTU	Signature	Name

HEAD OF THE BTU

Director of the Department of Landscape Design and Sustainable Ecosystems		E.A. Dovletyarova
Position, BTU	Signature	Name

РUCOBOДИТЕЛЬ ОП ВО:

Director of the Department of Landscape Design and Sustainable Ecosystems		E.A. Dovletyarova
Position, BTU	Signature	Name