



Portfolio for doctoral students

Information on doctoral student:

- First and last name **Anastasiia Klieshch**
- Structural unit (department, institute) **Karazin Institute of Environmental Science, department of environmental monitoring and protected areas**
- Curriculum title **Constructive geography and rational use of natural resources**



General information on studies:

- Thesis title in English and in local language
Optimization of the territorial structure of land use in Kharkiv using the landscape - ecological planning
Оптимізація територіальної структури землекористування м. Харків засобами ландшафтно-екологічного планування (in Ukrainian)
- Supervisor(s) **Nadiya Maksymenko**
- Curriculum, year of matriculation
- Academic leaves

INFORMATION ON ACADEMIC YEAR NO. 1 (2016-2017)

Status of research work:

- Overview of performed tests, collected data, field works, content and preliminary results of data processing **The collection and systematic analysis of scientific sources of information on the research topic. The field and laboratory stages of the experiment to study the geochemical indicators of the ecological condition of the soil cover in Kharkiv were carried out.**
- 10 most important articles, book chapters etc, with short summary

Meetings with supervisors:

- Date, place during the year, Kharkiv, V N Karazin KhNU
- Main topics, tasks
 - **Optimization of the territorial structure of the city's land use as a direction of achieving the goals of its sustainable development;**
 - **Analysis of theoretical and methodological provisions of landscape-ecological planning;**
 - **Inventory and analysis of natural and anthropogenic territorial structures of the urban landscape.**

Courses completed during academic year:

- Name of subject, Volume ECTS, University

In-service training in foreign university/laboratory:

- Period and place
- Tasks
- Results

Performance at conferences:



- Name, time and place of event
- Title and co-authors of presentation
- Whether oral or poster presentation

Performance at doctoral seminars:

- Name, time and place of event
- Title of presentation

Performed teaching:

- Name and code of subject/course **Landscape ecology, Organization of protected areas, Landscape - ecological planning, Landscape - ecological planning of protected areas, GIS in ecology, Formation of ecological network.**
- Type of work (practical course, lecture, seminar) **Practical course, lecture**
- Title of lectures
 - **Vertical landscape structure: components and relationships.**
 - **Spatial structure of plain and mountain landscapes: morphological units.**
 - **Functioning, dynamics and evolution of landscapes.**
 - **Prerequisites and history of landscape planning: from spatial planning to environmental spatial planning.**
 - **Basics of Landscape-ecological planning: object, purpose, principles.**
 - **National landscape-ecological systems: international experience and prospects for implementation in Ukraine.**
 - **Landscape-ecological planning as a part of schemes of the territorial plan of the city.**
 - **Geographical and biogeographical principles of ecological network planning.**
 - **Taking into account the pattern of land use in the design of ecological networks and others.**
- Number of classes **40**

Supervision or co-supervision

- Name of the student **S. Gaidar**
- Level (BSc, MSc) **BSc**
- Name of the curriculum **Ecology and environmental protection and sustainable use of nature**
- Title on the thesis **Ecological and geochemical assessment of landscapes of the Industrial district of Kharkiv**
- Name of the student **P. Ponomarenko**
- Level (BSc, MSc) **BSc**
- Name of the curriculum **Ecology and environmental protection and sustainable use of nature**
- Title on the thesis **Inventory territorial structure for the needs of nature city landscape planning**
- Name of the student **N. Korneeva**
- Level (BSc, MSc) **BSc**



- Name of the curriculum **Ecology and environmental protection and sustainable use of nature**
- Title on the thesis **Landscape analysis of the territory of the Konotop district of the Sumy region for the design of the ecological network**
- Name of the student **N. Sytnik**
- Level (BSc, MSc) **MSc**
- Name of the curriculum **Ecology and environmental protection and sustainable use of nature**
- Title on the thesis **Ecological assessment of the state of the landscapes of the forest reserve of local significance "Volodymyrivska dacha"**

Participation on research projects:

- **Participation on research projects:**
- Name of the project № 1-43-15 "Modeling the state of environmental components to create a system of environmental management of areas of different functional purpose" (№ DR 0115U000505);
- The funding scheme **funded by the Ministry of Education and Science of Ukraine**
- Name of leader of the project **G.Titenko**
- Tasks in the project : **Modeling the state of environmental components of areas of different functional purpose**

Articles published:

- Articles in Web of Science and/or Scopus-indexed journal
- Articles in international publications
 1. Maksymenko N. V., Klieshch A. A. Geochemical analysis of the urban landscape (on the example of Kharkiv). *Scientific Letters of Academic Society of Michal Baludansky*. 2016. Vol. 4, No. 3/2016. P. 127–130.
 2. Maksymenko, N., Klieshch A., Titenko G., Shumilova A., Cherkashyna N. Soils Assessment in Natural and Anthropogenic Landscapes for Environmental Managment. *Imperial Journal of Interdisciplinary Research*. 2017. Vol. 3, Iss. 6. P. 776–781.
- Articles in national publications
 1. Клещ А. А., Максименко Н. В., Пономаренко П. Р. Територіальна структура природокористування міста Харків. *Людина та довкілля. Проблеми неоекології*. Харків : Харківський національний університет імені В. Н. Каразіна, 2017. № 1-2 (27). С. 23–34.

Public engagement and outreach

- Publications aimed at a non-academic audience (such as popular science texts, newspaper features etc)
- Public lectures
- Media participation (such as interviews or comments)
- Blogs or social media accounts
- Work on advisory panels for social and cultural engagement;
- Industry or government or non-government organisation



Business and community

- Patent
- Membership of public or government advisory or policy group or panels

Activity plan for the next academic year

- Main tasks

PhD student: **Anastasiia Klieshch**
 PhD supervisor: **Nadiya Maksymenko**

INFORMATION ON ACADEMIC YEAR NO.2 (2017-2018)

Status of research work:

- Overview of performed tests, collected data, field works, content and preliminary results of data processing **Algorithm and methods of research of territorial structure of land use of the city by means of landscape-ecological planning are substantiated in detail. A database on the relief of the study area was collected, a series of digital relief models was developed. maps of hydrological and geomorphological relief modeling for the territory of Kharkiv in the GIS environment were created.**
- 10 most important articles, book chapters etc, with short summary

Meetings with supervisors:

- Date, place **during the year, Kharkiv, V N Karazin KhNU**
- Main topics, tasks
 - **Collection and systematization of geographical data on the characteristics of geomatic, biotic and social components of the urban landscape.**
 - **To determine the composition, configuration and parameters of the reproduced genetic-morphological, basin and position-dynamic natural structures of the urban landscape of Kharkiv.**
 - **Make maps of geomorphological structure, hypothetical distribution of genetic types of soil and vegetation and morphometric parameters of the relief of the earth's surface.**

Courses completed during academic year:

- Name of subject, Volume ECTS, University

In-service training in foreign university/laboratory:

- Period and place
- Tasks
- Results

Performance at conferences:

- Name, time and place of event
- Title and co-authors of presentation
- Whether oral or poster presentation



Performance at doctoral seminars:

- Name, time and place of event
- Title of presentation

Performed teaching:

- Name and code of subject/course **Landscape science, Landscape ecology, Landscape - ecological planning, Landscape - ecological planning of protected areas, GIS in ecology, Methods of measuring the parameters of the environment (cartographic research methods)**
- Type of work (practical course, lecture, seminar) **Practical course, lecture**
- Title of lectures
 - **Methods of analysis of cartographic images.**
 - **Methodological features of landscape mapping and their ecological condition.**
 - **Methods of geochemical assessment of the ecological condition of anthropogenic landscapes.**
 - **Ecological - economic assessment of the district in order to identify the main problems of land use.**
 - **Assessment of biodiversity and biotope sensitivity.**
 - **Applied aspects of the application of landscape-ecological planning: development of measures to optimize cultural landscapes and others.**
- Number of classes **45**

Supervision or co-supervision

- Name of the student **K. I. Osetyns'ka**
- Level (BSc, MSc) **BSc**
- Name of the curriculum **Ecology and environmental protection and sustainable use of nature**
- Title on the thesis **The influence of the territorial structure of nature management on the objects of the nature reserve fund of the city of Kharkiv**

- Name of the student **Ya.I. Vodyak**
- Level (BSc, MSc) **MSc**
- Name of the curriculum **Ecology**
- Title on the thesis **Design of the territorial structure of the ecological network of the Mzha watershed basin at the local level**

- Name of the student **Yu. Samoilova**
- Level (BSc, MSc) **BSc**
- Name of the curriculum **Ecology and environmental protection and sustainable use of nature**
- Title on the thesis **Geocological design of the water protection zone of the river Uda in Kharkiv.**

- Name of the student **M. Sheiko**
- Level (BSc, MSc) **BSc**
- Name of the curriculum **Ecology and environmental protection and sustainable use of nature**



- Title on the thesis **Ecological assessment of the sensitivity of the landscapes of the Nemyshlya river basin**
- Name of the student **A. Konnova**
- Level (BSc, MSc) **BSc**
- Name of the curriculum **Ecology and environmental protection and sustainable use of nature**
- Title on the thesis **Assessment of anthropogenic load on landscapes within Kharkiv region**
- Name of the student **O. Hvorost**
- Level (BSc, MSc) **BSc**
- Name of the curriculum **Ecology and environmental protection and sustainable use of nature**
- Title on the thesis **Videoecological assessment of the city park (on the example of Lodz, Poland)**
- **Participation on research projects:**
- Name of the project **«Minimization of environmental risks in the elimination of the consequences of natural and man-made disasters (accidents) in the system of environmental safety "№ state registration 0117U004873**
- The funding scheme **funded by the Ministry of Education and Science of Ukraine**
- Name of leader of the project **G. Titenko**
- Tasks in the project **Meteorological and climatic factors influencing the probability of natural and man-made disasters**

Articles published:

- Articles in Web of Science and/or Scopus-indexed journal
 1. Максименко Н. В., Клещ А. А. Напрямки оптимізації природокористування в інвайронментальному менеджменті територій локального рівня організації довкілля. *Журнал з геології, географії та екології*. 2017. №2, Т.25. С. 81–88.
- Articles in international publications
 1. Maksymenko N., Kleshch A., Shumilova A. Landscape-ecological assessment of «Volodymyrivska dacha» forestry reserve's territory for environmental management. *ТЕКА. Commission of motorization and energetics in agriculture*. 2017. Vol. 17, No.1. P. 91-96.
- Articles in national publications
 1. Клещ А. А. Історія формування міського ландшафту Харкова: досвід та методичні особливості дослідження. *Вісник Харківського національного університету імені В. Н. Каразіна. Серія «Екологія»*. Харків : Харківський національний університет імені В. Н. Каразіна, 2017. Вип. 17. С. 63–71.

Public engagement and outreach

- Publications aimed at a non-academic audience (such as popular science texts, newspaper features etc)



- Public lectures
- Media participation (such as interviews or comments)
- Blogs or social media accounts
- Work on advisory panels for social and cultural engagement;
- Industry or government or non-government organisation

Business and community

- Patent
- Membership of public or government advisory or policy group or panels

Activity plan for the next academic year

- Main tasks

PhD student: **Anastasiia Klieshch**
 PhD supervisor: **Nadiya Maksymenko**

INFORMATION ON ACADEMIC YEAR NO.3 (2018-2019)

Status of research work:

- Overview of performed tests, collected data, field works, content and preliminary results of data processing **The territorial structures of the Kharkiv urban landscape have been assessed with regard to the type of land use and functional purpose. Carmetric methods showed that the dominant type is urban (39%), subdominant - protective and recreational (27%) and industrial (15%). Other types of land use are less common. A set of evaluation maps has been compiled, which can be used in the development of the landscape program of the city of Kharkiv. Determining the degree of anthropogenic transformation of the landscape and research to determine the content of mobile forms of some heavy metals in the assessment phase was carried out on the example of individual sections of the city (parts of the basins of the Uda and Lopan rivers, respectively).**
- 10 most important articles, book chapters etc, with short summary

Meetings with supervisors:

- Date, place **during the year, Kharkiv, V N Karazin KhNU**
- Main topics, tasks
 - **Perform a historical reconstruction of the process of forming the structure of land use of the urban landscape of Kharkiv on the basis of ancient cartographic works;**
 - **To determine the current state of the land use structure of the urban landscape of Kharkiv on the basis of continuous in-camera decoding of satellite images;**
 - **Calculate the degree of anthropogenic transformation of the model landfill in the study area (according to the method of P. Shishchenko, 1999).**

Courses completed during academic year:

- Name of subject, Volume ECTS, University

In-service training in foreign university/laboratory:



- Period and place
- Tasks
- Results

Performance at conferences:

- Name, time and place of event **XXII International Scientific and Practical Conference "Ecology, Environmental Protection and Sustainable Nature Management: Education - Science - Production - 2019, 17-April 18, 2019, Kharkiv: V N Karazin KhNU**
- Title and co-authors of presentation **Features of the assessment of conflicts of nature use of urban protected areas; K. I.Osetyns'ka**
- Whether oral or poster presentation **Oral presentation**

Performance at doctoral seminars:

- Name, time and place of event
- Title of presentation

Performed teaching:

- Name and code of subject/course **Cartographic support of ecological research, Landscape science, Landscape ecology, Landscape - ecological planning, Landscape - ecological planning of protected areas, GIS in ecology**
- Type of work (practical course, lecture, seminar) Practical course, lecture
- Title of lectures
 - Ecological cartography and cartographic method of research in ecology.
 - Variety of geographical maps and features of their use in ecological research.
 - Cartographic semiotics in ecological mapping.
 - Methods and varieties of ecological research on cartographic images.
 - Graphic methods of cartographic image analysis
 - Topical landscape ecology: concepts and main provisions.
 - Factors, amplitudes and niches of landscape locations. Classification and ordination of landscape places.
 - Assessment of landscape condition, ecological risks and rationing of anthropogenic loads and others/
- Number of classes **45**

Supervision or co-supervision

- Name of the student, **N. O. Korneeva**
- Name of the student **S. O. Gaidar**
- Level (BSc, MSc) **MSc**
- Name of the curriculum **Ecology**
- Title on the thesis **Ecological mapping of rare biotopes of Slobozhansky National Park**
- Name of the student, **A. D. Davidov**
- Level (BSc, MSc) **MSc**
- Name of the curriculum **Ecology**



- Title on the thesis **Videoecological assessment of the T. G Shevchenko urban garden, Kharkiv**
- Name of the student, **V. Shirkanova**
- Level (BSc, MSc) **BSc**
- Name of the curriculum **Ecology and environmental protection and sustainable use of nature**
- Title on the thesis **Ecological assessment of environmental components in the temporarily occupied territories of the Donetsk region (on the example of Horlivka)**

Participation on research projects:

- Name of the project **“Landscape-ecological modeling of forest plantations of the green zone of Kharkiv for environmental risk assessment” № state registration 0118U002171**
- The funding scheme **without funding**
- Name of leader of the project **N. V. Maksymenko,**
- Tasks in the project : **Landscape-ecological modeling of forest plantations of the green zone of Kharkiv**

Articles published:

- Articles in Web of Science and/or Scopus-indexed journal
 - Articles in international publications
 - Articles in national publications
1. Клещ А. А., Самойлова Ю. В. Організація водоохоронних зон в містах України: методичні проблеми та шляхи їх вирішення засобами ландшафтноекологічного планування. *Людина та довкілля. Проблеми неоекології*. Харків : Харківський національний університет імені В. Н. Каразіна, 2019. Вип. 31. С. 26–39.

Public engagement and outreach

- Publications aimed at a non-academic audience (such as popular science texts, newspaper features etc)
- Public lectures
- Media participation (such as interviews or comments)
- Blogs or social media accounts
- Work on advisory panels for social and cultural engagement;
- Industry or government or non-government organisation

Business and community

- Patent
- Membership of public or government advisory or policy group or panels

Activity plan for the next academic year

- Main tasks

PhD student: **Anastasiia Klieshch**
 PhD supervisor: **Nadiya Maksymenko**



INFORMATION ON ACADEMIC YEAR NO.4 (2019-2020)

Status of research work:

- Overview of performed tests, collected data, field works, content and preliminary results of data processing **Based on the results of the inventory and evaluation stages of the study, the zoning of the city of Kharkiv was performed and the directions of optimization of the land use structure for each type of zones were substantiated. A project of water protection zoning of the Uda River within the city limits and recommendations on normalization of anthropogenic load on protected objects located on the territory of the city have been developed.**
- 10 most important articles, book chapters etc, with short summary

Meetings with supervisors:

- Date, place **during the year, Kharkiv, V N Karazin KhNU**
- Main topics, tasks
 - **Implementation of the project of delimitation and zoning of the territory of the water protection zone of the Uda River within the city of Kharkiv;**
 - **Development of recommendations for the standardization of anthropogenic levels load on the regional landscape park (RLP) "SokolnikiPomirki".**

Courses completed during academic year:

- Name of subject, Volume ECTS, University

In-service training in foreign university/laboratory:

- Period and place
- Tasks
- Results

Performance at conferences:

- Name, time and place of event **XXII International Scientific and Practical Conference "Ecology, Environmental Protection and Sustainable Nature Management: Education - Science - Production - 2019, 17-April 18, 2019, Kharkiv: V N Karazin KhNU**
- Title and co-authors of presentation **Development of the Sokolniki-Pomirki RLP ecosystem management algorithm; K. I Osetyns'ka, M. V. Sheyko.**
- Whether oral or poster presentation **Oral presentation**

Performance at doctoral seminars:

- Name, time and place of event **extended meeting of the Department of Environmental Monitoring and Nature Management, V N Karazin KhNU. August 31, 2020**
- Title of presentation **Optimization of the territorial structure of land use in Kharkiv using the landscape - ecological planning**

Performed teaching:



Name and code of subject/course, **Territorial organization of nature use. Landscape science, Landscape ecology, Landscape - ecological planning, Landscape - ecological planning of protected areas, GIS in ecology**

- Type of work (practical course, lecture, seminar) **practical course, lecture, seminar**
- Title of lectures
 - **General characteristics of some types of nature management and typical measures for their rational use and protection**
 - **Nature management system in Ukraine and areas of activity of the territorial organization.**
 - **GIS technologies and their use in the professional activities of the ecologist.**
 - **The main functionalities of geographic information systems.**
 - **Collection of geodata using GIS and GPS technologies in the field.**
 - **Possibilities of raster data analysis operations.**
 - **TIN models. Three-dimensional modeling and visualization.**
- Number of classes **45**

Supervision or co-supervision

- Name of the student **M. Sheiko**
- Level (BSc, MSc) **MSc**
- Name of the curriculum **Ecology**
- Title on the thesis **Monitoring of ecological processes of the regional landscape park "Sokolnyki-Pomirki" by remote sensing**

- Name of the student **O. Hvorost**
- Level (BSc, MSc) **MSc**
- Name of the curriculum **Ecology**
- Title on the thesis **Videoecological assessment of urban forest landscapes of Kharkiv**

- Name of the student **A. Konnova**
- Level (BSc, MSc) **MSc**
- Name of the curriculum **Ecology**
- Title on the thesis **Assessment of the impact of the traffic flow on the regional landscape park "Sokolnyki-Pomirki"**

- Name of the student **K. I. Osetyns'ka**
- Level (BSc, MSc) **MSc**
- Name of the curriculum **Ecology**
- Title on the thesis **Recreational digression of regional landscape park "Sokolnyki-Pomirki"**

- Name of the student **V. Tseva**
- Level (BSc, MSc) **BSc**
- Name of the curriculum **Ecology**
- Title on the thesis **Ecological and geochemical assessment of landscapes of Shevchenkiv district of Kharkiv**



Participation on research projects:

- Name of the project **"Constructive-geographical and cartographic substantiation of determining the boundaries of the nature reserve fund in the conditions of land reform of Ukraine"** (№ DR 0220U10114444)
- The funding scheme **without funding**
- Name of leader of the project **G. Titenko, N. V. Maksymenko, V. A. Peresad'ko**
- Tasks in the project **To assess the suitability of the original sources of information and selection of tools to determine the boundaries of protected areas.**

Articles published:

- Articles in Web of Science and/or Scopus-indexed journal
 1. Klieshch, A., Maksymenko, N. Positional-dynamic territorial structure of the urban landscape. *Journal of Geology, Geography and Geoecology*. 2020. Vol. 29, No 3. P. 539-549.
 2. Безроднова, О. В., Клещ, А. А. Рослинний покрив прибережної та берегової зон лісових боліт НПП «Слобожанський» (особливості структури та напрямки трансформації). *Вісник Харківського національного університету імені В. Н. Каразіна. Серія «Біологія»*. 2019. Вип.32, 5-17. <https://doi.org/10.26565/2075-5457-2019-32-1>
- Articles in international publications
- Articles in national publications
 2. Клещ А. А., Максименко Н. В. Трансформація водозбірного басейну р. Уди в межах м. Харків. *Вісник Харківського національного університету імені В. Н. Каразіна. Серія «Екологія»*. Харків : Харківський національний університет імені В. Н. Каразіна, 2019. Вип. 21. С. 6–22.

Public engagement and outreach

- Publications aimed at a non-academic audience (such as popular science texts, newspaper features etc)
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- Work on advisory panels for social and cultural engagement;
- Industry or government or non-government organisation

Business and community

- Patent
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Activity plan for the next academic year

- Main tasks

PhD student: **Anastasiia Klieshch**
 PhD supervisor: **Nadiya Maksymenko**