

**POLICY OF OPEN SCIENCE
IN THE STATE HIGHER EDUCATIONAL INSTITUTION
“UZHHOROD NATIONAL UNIVERSITY”**

Uzhhorod 2023

Introduction

During the global crisis triggered by the COVID-19 pandemic, open science emerged as an indispensable factor for classical higher education institutions, exemplified by the State Higher Educational Institution 'Uzhhorod National University.' This crisis underscored the utmost significance of unfettered access to scientific information, software, algorithms, and scientific workflows, as well as prompt knowledge dissemination and collaboration among researchers to surmount worldwide challenges. Additionally, the higher education system, akin to other sectors of the nation, endured significant losses and devastation during the recent phase of conflict initiated against Ukraine by Russia on February 24, 2022. Consequently, these exigencies demand an accelerated exchange of scientific knowledge to attain substantial outcomes.

The Implementation of the Open Science Policy at the State Higher Educational Institution “Uzhhorod National University” (hereinafter referred to as the Policy) is aimed at significantly enhancing its research capacity while ensuring the quality and integrity of research results. It aims to increase the efficiency and productivity of scientific research, promote the commercialization of scientific output, engage the public, and inform citizens about research findings. The Policy seeks to strengthen trust in science and scientists, ensure adequate investment support for research activities from the government and business sectors, and foster the internationalization of the university's research efforts and integration into the European Research Area.

The implementation of the Policy will create necessary conditions to integrate the values and practices of open science into the educational, scientific, and innovative activities of Uzhgorod National University. It will be aligned with relevant policies and practices of international institutions, including UNESCO and the European Commission, as well as draw on the experience of open science development in foreign higher education institutions. Significant prerequisites for implementing open science at the State Higher Educational Institution “Uzhgorod National University” also include

Ukraine's attainment of candidate status for EU membership, which provides access to programs and initiatives available to EU countries and candidate countries. The preparation for EU membership involves completing transformations in all spheres by fulfilling the commitments undertaken by Ukraine:

- In accordance with the "Association Agreement between Ukraine, on the one hand, and the European Union, the European Atomic Energy Community, and their Member States, on the other hand" (2014), provisions have been made for the reform and modernization of the higher education system, fostering closer cooperation between higher education institutions, facilitating the exchange of information on science and technology policies, enabling participation in the upcoming EU Framework Programme for Research and Innovation, undertaking joint implementation of scientific programs and research endeavors, collaborating on research projects to promote scientific advancement, technology transfer, and knowledge-sharing. Additionally, the agreement encompasses training initiatives through exchange programs for researchers and specialists, as well as organizing joint events to further scientific and technological development. Furthermore, efforts are being taken to establish favorable conditions for research and technology implementation, while ensuring adequate protection of intellectual property concerning research outcomes, among other matters.

- As per the "Association Agreement of Ukraine with the European Union's Horizon Europe Research and Innovation Program" (2021-2027), the Association supports the 'Global Approach to Research and Innovation' and affirms Europe's commitment to global openness, essential for achieving excellence, pooling resources for faster scientific progress, and fostering innovative ecosystems. The Open Science Policy is an integral part of the entire Horizon Europe program.

- According to the 'European Atomic Energy Community (EURATOM) Research and Training Program' (2021-2025), it aims to promote knowledge dissemination through the Open Science EURATOM research and training program, among other initiatives.

The policy has been developed in accordance with the norms of the Constitution of Ukraine, Ukrainian laws “On Scientific and Scientific-Technical Activity”, “On Scientific and Scientific-Technical Information,” ‘On Copyright and Related Rights’, ‘On Higher Education,’ the Roadmap for Ukraine's Integration into the European Research Area (ERA-UA) approved by the order of the Ministry of Education and Science of Ukraine No. 167 dated February 10, 2021, as well as other regulatory acts in the field of science and education, UNESCO Recommendations on Open Science, Directive 2019/1024 of the European Parliament and Council on Open Data and the Reuse of Public Sector Information, the Charter of Uzhgorod National University, Regulations on Academic Integrity at Uzhgorod National University, and the Regulations on the Electronic Archive (Institutional Repository) of Uzhhorod National University.

The main components of Open Science for Uzhhorod National University are as follows:

1. Open access to scientific works.
2. Open access to research infrastructure.
3. Popularization of science and fostering Open Science competencies.
4. Research integrity and ethical conduct.
5. Evaluation of research results.

The implementation of the Policy is aimed at educational and research, as well as innovative activities, involving all scientific and academic staff, doctoral candidates, and students of Uzhhorod National University, and focusing on the outcomes of their fundamental and applied scientific research. This approach will lead to improved resource utilization and exchange, enhanced transparency of research results, accelerated transition from research to innovation, and increased involvement of citizens in scientific, research, and innovative endeavors.

1. The objectives and tasks of open science

1.1. The aim of implementing Open Science at Uzhhorod National University

(hereinafter referred to as the University) is to ensure the reform of research and innovation activities, facilitate effective technology transfer, promote the internationalization of research, and integrate the University into the European Research Area.

1.2. To achieve the defined goal of implementing Open Science at the University, the following priority tasks are necessary:

- Ensuring open access to the results of fundamental and applied scientific research and scientific-technical information.
- Providing open access to research infrastructure.
- Creating conditions for effective work with scientific-technical information and research infrastructure objects available in open access.
- Accelerating knowledge transfer and promoting a faster transition from scientific research to innovation.
- Promoting science popularization, dissemination of scientific knowledge, and engaging citizens in scientific and innovative activities.
- Improving the quality assessment system for scientific and scientific-technical activities.
 - Increasing awareness and competence in the field of Open Science.

1.3. Scientific and academic staff, doctoral candidates, and students of the University should be guided by the values and principles of Open Science in their academic activities.

1.4. The core values of Open Science are:

Benefit for society - Open science is a global public good and should belong to and benefit all of humanity. Scientific knowledge should be openly accessible, and scientific achievements should become part of the collective knowledge of society.

Equality and fairness - Open science should play a vital role in ensuring equal opportunities for researchers from developed and developing countries. It allows them to mutually and fairly share scientific resources and results, providing equal access to

scientific knowledge for both creators and users, regardless of their geographic location, nationality, race, age, gender, ethnic background, or socio-economic status.

Quality and reliability - Open science should ensure high-quality scientific research by combining diverse sources of knowledge and providing free access to research methods and scientific results for thorough analysis and verification.

Diversity - Open science should embrace various methods, procedures, languages, results, and research topics that correspond to the needs and reflect the epistemological pluralism of different scientific communities, scholars, knowledge holders, and social entities from various countries and regions.

Inclusivity - Open science should inclusively involve all researchers, the wider public, and knowledge holders who are not part of institutionalized scientific communities. This includes representatives of indigenous peoples and other local communities. They should be constructively engaged in obtaining new knowledge and contributing to the scientific discourse.

1.5. The main principles of Open Science are:

Transparency, control, critical analysis, and verifiability - Ensuring greater openness at all stages of scientific activities enhances the societal impact of science, enabling society to address complex interconnected problems effectively. Increased openness leads to greater transparency and trust in scientific information, strengthening the fundamental basis of science as a form of knowledge based on facts that have been verified through comparison with reality, logical analysis, and expert review.

Equal opportunities and access - All scientific and academic staff, doctoral candidates, students, and other subjects of Open Science, regardless of their place of residence, gender, research field, funding source, professional career, status, or any other criteria, should be able to equally contribute to and benefit from Open Science and its results.

Respect, responsibility, and accountability - Greater openness leads to increased accountability for all involved in Open Science. Accountability, intellectual honesty, and respect for ethical principles form the foundation of effective management in the

field of Open Science.

Collaboration, participation, and inclusivity - Collaboration should be embraced at every phase of scientific research, irrespective of geographical, linguistic, age, gender, interdisciplinary, and resource disparities. This includes promoting inclusive and robust engagement of the public, as well as leveraging marginalized knowledge to tackle socially significant issues.

Flexibility - Due to the existing diversity of scientific systems, subjects, and resources worldwide, and considering the dynamic development of information and communication technologies, applying universal approaches to Open Science tools and practices is not feasible. Therefore, it is essential to develop various methods for implementing Open Science while adhering to the core values and taking into account other Open Science principles.

Sustainability - Maximum efficiency and effectiveness in Open Science are achieved through sustainable working methods, services, infrastructure, and funding models that ensure equal participation of researchers from institutions and countries in less favorable conditions. Open Science infrastructure should operate on a non-profit basis and guarantee continuous and unrestricted access for all interested parties.

2. Access to Research Results

2.1 The University supports the provision of free access to research results without any financial, legal, or technical barriers within the framework of Ukrainian legislation and its own powers.

2.2 The University facilitates unrestricted access to research results of academic and research staff, doctoral students, and students published in subscription-based publications through self-archiving in the University's institutional repository (DSpace.UzhNU - the repository of Uzhhorod National University, which is an electronic archive that accumulates, organizes, preserves, and provides long-term open access to works through archiving and self-archiving, and is part of the University's general electronic collection), in accordance with the

conditions defined by the specific publication's publishing policy.

2.3 The University recommends researchers, academic and research staff, doctoral students, and students to place their research results in the form of works recommended for publication by the University's Academic Council, such as articles, monographs, textbooks, methodological materials, thematic collections, conference materials (preprints or postprints), scientific publications of the University's staff carried out in other publishing houses, provided there is no prohibition on their placement in the repository by the publishers, abstracts of dissertations defended by University staff, and other materials of scientific, educational, or methodological nature at the author's discretion.

2.4 Articles of doctoral students and students may be placed with the recommendation of their scientific supervisor, who registers in DSpace.UzhNU and confirms their recommendation, or by the librarian-depositor based on the submission from the scientific supervisor.

2.5 If the University's researchers and academic staff collaborate with employees of other institutions, this Policy applies to the part of the research result obtained by the University's scientists, unless there is a specific agreement to the contrary.

2.6 The terms of access established by the respective agreements apply to research results obtained during the execution of research under contracts.

3. Access to Research Infrastructure

3.1 Research data of the University must be stored in electronic form.

3.2 The management of research data at the University is carried out in accordance with the FAIR principles.

3.3 The University recommends researchers, academic and research staff, doctoral students, and students to develop data management plans at the initial stage of research, which outline how data will be processed in accordance with the FAIR principles.

3.4 Access to research data is provided through DSpace.UzhNU for free use, preservation, and dissemination, provided that the source is correctly cited and to confirm the scientific results of fundamental and applied research presented in the form of scientific reports, articles, presentations, monographs, etc.

3.5 Restrictions on access to the University's research data may be established for cases specified by Ukrainian legislation and/or special agreements regarding the dissemination and use of such data.

3.6 The University's research data may also be deposited in other repositories designated for collaborative data archiving from various institutions.

3.7 The University is developing the appropriate infrastructure to achieve the goal and fulfill the tasks defined by this Policy.

3.8 The infrastructure for open science at the University includes:

- DSpace.UzhNU: This platform serves as an electronic archive to accumulate, systematize, and preserve intellectual products of the university community in electronic form. It provides open access to these materials and facilitates their dissemination within the global scientific and educational community.
- Publishing platform for scientific journals: This platform supports the functioning of open-access journals that provide free access to research results.
- University publishing platform: This platform is dedicated to publishing educational and scientific publications in open access.
- Open scientometric platforms: These platforms are utilized for monitoring and evaluating scientific activities.
- Server capacities: The University maintains server capacities for storing scientific results, research data, open educational resources, and tools for secure management of confidential research data.
- Open scientific research institutes, centers, and laboratories: These are dedicated facilities that promote and conduct open scientific research.

3.9 The University implements and maintains specific elements of the open science infrastructure, both independently and in collaboration with other organizations.

3.10 The digital infrastructure elements of open science should be based, in part, on open-source software. These elements can be supported through funding from the state budget of Ukraine, where the University acts as the recipient, or from other non-prohibited sources in accordance with Ukrainian legislation. This may include special grant projects aimed at developing open science and allocating a specific percentage of funding for open science infrastructure development from each funded grant project.

3.11 Educational and didactic materials created by University staff for use in the educational process should have a digital object identifier (DOI) and be made publicly available and distributed under open licenses such as Creative Commons (CC-BY or CC-BY-SA), provided this does not violate applicable intellectual property laws.

3.12 A necessary condition for educational resources used in the educational process is that they are created within the scope of the workload of a scientific and pedagogical employee of the University.

3.13 If open learning resources are created in collaboration with employees of other institutions, the collaboration agreement should specify which parts of the content (exercises, exam questions, study materials) may be made available in accordance with this Policy.

4. Intellectual property and academic integrity

4.1 The norms of the Policy apply to scientific and scientific-pedagogical workers, graduate students and students of the University who are the authors of objects of intellectual property rights.

4.2 When deciding on the distribution of scientific results according to the principles of open science, the authors of intellectual property rights are obliged to make sure that the research is not of a confidential nature or was not carried out under contractual conditions that prevent open access.

4.3 Placement in open access of scientific results, which include objects of intellectual property rights belonging to other persons, is possible on the condition that the contract of the owners of the rights for such use is drawn up in accordance with the procedure established by the current legislation.

4.4 Before posting scientific results according to the principles of open science, scientific and scientific-pedagogical workers, graduate students and students of the University must make sure that they do not contain information that must be protected by industrial property, in particular inventions, useful models, industrial samples, etc. Free access to scientific results, academic texts containing information that requires the protection of intellectual property rights is postponed until the author acquires rights to intellectual property objects.

4.5 The University recommends that researchers retain intellectual property rights and copyrights for scientific results that may be alienated when entering into publishing agreements and licenses for their use and transfer to publishers only those rights that are necessary for publication.

4.6 The Department of Patent Licensing and Commercialization of Intellectual Property Objects of the Research Unit of UzhNU undertakes to provide assistance to researchers in matters of licensing, acquisition of intellectual property rights to scientific results, risk assessment of the possibility of premature disclosure of information.

4.7 The University obliges all participants in educational, research and innovation activities to adhere to the principle of academic integrity.

4.8 Faculty members, academic staff, graduate students, and undergraduate students of the University are required to uphold universally acknowledged ethical and moral standards. They must demonstrate respect for the dignity of all individuals engaged in work and studies within the University. Furthermore, they are expected to promote a system of democratic relations among members of the university community and actively contribute to enhancing the moral and psychological atmosphere within the team. It is their duty to align their actions towards bolstering the University's reputation

and standing.

4.9 The Policy on Open Science emphasizes the importance of academic integrity and adherence to ethical principles throughout the research and academic activities at the University. In cases where scientific and academic staff, as well as doctoral students, violate the rules of academic integrity, appropriate measures of legal responsibility will be applied in accordance with the requirements of Ukrainian legislation, the University's Statute, Internal Rules, and other local normative acts of the University.

5. Popularization of science and formation of competence in open science

5.1. To attain the objective and execute the tasks outlined in this Policy, it is imperative to enhance awareness and foster proficiency in open science among the university's academic and scientific staff, postgraduate students, undergraduates, and also among citizens who will partake in research and innovation endeavors.

5.2. Work on raising the level of awareness and building competence in open science can be carried out in the following directions:

- conducting fundamental and applied scientific research on issues of open science;
- inclusion of open science topics in educational components;
- professional development of scientific and scientific-pedagogical workers;
- scientific events (providing recommendations, consultations, conducting seminars, round tables, trainings, webinars, etc.);
 - special promotions and campaigns for the popularization of science (workshops, exhibitions, flash mobs, videos, quests).

6. Open science in the evaluation of scientific and scientific-pedagogical achievements

6.1. Indicators in the implementation of open science practices (in particular, open access to publications and data, contribution to open peer review, development of open educational resources) are taken into account when concluding contracts and staying in office.

6.2. When evaluating the scientific achievements of the University, structural divisions

and individual employees of the University, only those scientific results presented in the open science infrastructure of the University, in accordance with the requirements specified above, are taken into account.

6.3. In order to implement the Open Science Policy at the University, an Action Plan will be developed, which will assess the level of open access to scientific publications, scientific data, open educational resources, software, equipment, as well as activities to increase the level of awareness and build competence in open science. The first such plan will be developed for 2024.

7. Final provisions

7.1. This Policy enters into force from the moment of its approval by the Academic Council of the University and implementation by order of the rector.

7.2. Changes and additions to this Policy are made by decision of the Academic Council of the University.

7.3. Relations that are not regulated in this Policy are regulated by the legislation of Ukraine.