Open Science Policy of Bern University of Applied Sciences (OS Policy)

Bern, January 2023, Open Science Office

Approved by the University Board on 23 May 2023

With this Open Science Policy, BFH lays down rules for the implementation of OS[1] in its own institution. Open Science represents a cultural shift towards open and transparent science and encompasses the following elements:

- **Open Access** free publications accessible on the internet
- **Open Research Data** freely accessible research data
- **Free and Open Source** free software, with freely accessible source codeccessible
- **Open Science**
- **Open Educational Resources** open teaching, learning and research resources
- **Open Methodology** free access to the description of scientific methodologies
- **Open Peer Review** open access to peer review of scientific outputs

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[1]A comprehensive glossary of terms relating to Open Science can be found here. For more information on the implementation of Open Science, please visit the intranet page of BFH's Open Science Office.

1 General requirements

At BFH, scientific achievements that are financed with public funding should always be made available to the public without restriction, provided there are no contractual obligations that prevent this nor a legitimate interest in confidentiality. This includes the publication of scientific work and of research data, the sharing of teaching materials and source codes, accessible documentation of methods, and the open peer review of the work by third parties.

BFH expects its research and teaching staff to
➢ publish scientific products directly under an open licence (preferably CC-BY) and assign them a Digital Object Identifier (DOI);
➢ only enter into contracts that comply with the OS policy when publishing scientific results;
➢ create an Open Researcher and Contributor Identity (ORCID) and actively use it to identify their scientific output;
➢ actively pursue citizen science and public engagement and share their scientific publications increasingly in dialogue with the general public, making them freely accessible.

BFH expects its schools and divisions to
➢ create the necessary framework to enable staff to effectively and efficiently create, adapt, integrate, share, and use Open Science. This comprises:
  o guiding the systematic development of staff competencies in OS;
  o modelling, promoting and rewarding the culture of sharing;
  o establishing quality assurance for OER (e.g. content, target group, didactics, legal and formal criteria).

2 Good scientific practice

Open Science represents a paradigm shift in science towards transparency and reusability. BFH considers Open Science to be good scientific practice (cf. Regulations on Scientific Integrity at BFH). This cultural shift must be anchored both in the structures of BFH and in the way researchers and teachers work. When implementing the Open Science Policy, conflicting interests of third parties, e.g. the commercial use of research results (cf. BFH Intellectual Property Policy), are taken into account. In particular, rights that warrant protection and legal requirements must be observed.

3 Open Access

In implementing the Open Access principle, BFH follows the guidelines of national and international research funding organisations (Swiss National Strategy on Open Access of swissuniversities, implementation of the Open Access Policy of the Swiss National Science Foundation SNSF).

Based on the principle of Open Access, BFH research results should be made freely accessible, if possible under an open licence. 'Platinum', 'Gold' or 'Green' Open Access publications should be prioritised over 'Hybrid' Open Access.

Detailed information can be found in the BFH OA Policy.

4 Open Educational Resources

OER is an important component of OS, fostering as it does the formation of specialist communities and the ongoing development and sharing of knowledge. The essence of the OER principles is that educational resources should be openly or freely licensed.

Detailed information can be found in the BFH OER Policy.

5 Open Research Data

In its implementation of Open Research Data, BFH is guided by the Swiss National ORD Strategy and the Guidelines of the Swiss National Science Foundation on ORD.

Research and teaching staff at BFH are required to archive research data that is necessary to ensure the reproducibility of published scientific findings in FAIR[2]-compliant repositories, and to share it without restriction. Where legal or contractual reasons prevent such publication, it is recommended that the metadata of the research data concerned be published.

Detailed information can be found in the ORD policy.

6 Open Peer Review

BFH supports transparent procedures for the peer review of scientific products as Open Peer Review. It strives to use Open Peer Review procedures when awarding internal funding and to make evaluations transparent, and recommends that its researchers and teaching staff adopt an Open Peer Review approach when conducting their own evaluations.

7 Free and Open Source Software

BFH welcomes the sharing of software resulting from scientific work under open licences.

8 Open Methodology

BFH welcomes the use of open laboratory journals following the principle of Open Methodology and proposes that any documentation that exists on research processes and methodologies be made accessible together with other publications (OA, ORD, OER).

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[2]FAIR – Findable, Accessible, Interoperable, Reusable; see FAIR principles.

Open Access Policy of Bern University of Applied Sciences (OA Policy)

Bern, January 2023, Open Science Office
Approved by the University Board on 23 May 2023

1 Initial situation and motivation

Bern University of Applied Sciences declares the support and promotion of Open Access (OA) a strategic goal, as described in the _Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities_, which was signed by the Rector's Conference of Swiss Universities of Applied Sciences (KFH), now swissuniversities, in 2006.

The Open Access Policy of Bern University of Applied Sciences is based on the guidelines of the national and international research funding organisations (Swiss National Science Foundation SNSF, swissuniversities, Swiss Academy of Humanities and Social Sciences SAGW).

OA provides free access to research results, increases their visibility and citation frequency, makes research results easier and quicker to find and access, and promotes international and interdisciplinary collaboration. The policy does not restrict freedom of research in any way, and the free choice of publication channels remains guaranteed.

2 General requirements

Bern University of Applied Sciences adopts the following guidelines:

1. As of 1 January 2020, BFH staff are obliged to make a complete version of all publications of research results funded by public funds, along with the corresponding bibliographic data, openly accessible in the institutional repository of BFH (ARBOR – Applied Research Bern Open Repository), provided there are no relevant reasons[1] preventing publication. The metadata and full texts should be submitted as promptly as possible once completed, but at the latest by 31 December of the year of publication.
– BFH staff are also encouraged to deposit a complete version of all previously published research results (regardless of the type of funding) and the corresponding bibliographic data in the institutional repository of BFH, provided that there are no relevant reasons[2] preventing publication.
2. BFH suggests that henceforth its staff publish their research results directly under Open Access (journal or monograph), provided that suitable media exist (OA Gold). In this context, Green, Gold and Platinum Open Access publishing models are preferable to Hybrid Open Access.

BFH appeals to its staff to publish their research results under an Open Access licence (preferably CC-BY).

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[1] This notably includes contractual agreements, data privacy and patient protection, and intellectual property rights.
[2] Ibid.

Open Educational Resources Policy of Bern University of Applied Sciences (OER Policy)

Bern, August 2022, Virtual Academy

Approved by the University Board on 23 May 2023

Preamble

The progress of digital transformation has already permanently changed many areas of our lives. For instance, the 'sharing' principle has been an integral part of everyday life for many years. One sign of this culture of sharing in the education sector is the rise of Open Educational Resources (OER). UNESCO (UNESCO, 2012) defines Open Educational Resources as follows:

> [...] OER are "teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions".

OER seek to promote the formation of specialist communities, and further development and sharing of knowledge. In the education sector, however, the sharing of OER is not yet a routine matter. For example, a survey of Swiss universities conducted by ZHAW came to the conclusion that although three quarters of respondents rated the benefits of OER as moderate to high, only around 30% of the universities surveyed were already producing OER themselves. The main reasons cited for this are a lack of time, a lack of incentives and skills, a lack of suitable repositories and uncertainties regarding rights of use, quality problems or insufficient matching of the content (Gutknecht, Reimer, & Lüthi, 2020).

The aim of this OER Policy is to define the framework conditions to enable, promote and motivate BFH staff in dealing with OER. This concerns the fields of action of creating, reusing, revising, remixing, redistributing, sharing and retaining OER (Hilton, Wiley, Stein & Johnson, 2010). Besides establishing the framework, the OER Policy also includes a definition of guidelines for successful implementation at BFH.

This policy is based on the **UN Sustainable Development Goal** 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all' (Miao, Mishra, Orr & Janssen, 2019) and on the **Strategic Goal 3.2 'Culture of Sharing' of the** Strategy Teaching and Learning in the Digital Age 2020–2024. BFH is committed to the topic of Open Educational Resources and undertakes to actively promote them.

Advantages of OER

With respect to the dissemination and promotion of OER, Bern University of Applied Sciences sees numerous advantages for education, for the institution and for people involved in the educational process:

➢ The quality of educational resources is improved as they are shared, reviewed, revised, and used.
➢ Educational resources stay more up to date.
➢ By taking over existing content and simply adapting what already exists, time can be saved and thereby efficiency boosted.

- ➢ A uniform licensing process creates clarity and transparency on how educational resources can be shared and used.
- ➢ The visibility and reputation of staff in the creation of educational resources is boosted.
- ➢ Collaboration and a community mindset are strengthened.

1 Copyright and usage rights

Educational resources are subject to copyright. Pursuant to Art. 60 of the Personnel Act (Canton Bern, 2017) and Art. 2.4 of the Intellectual Property Policy (BFH, 2017), all proprietary usage and exploitation rights of works created by staff in the course of their teaching activities (or a comparable legal relationship) are held by BFH.

Notwithstanding this, the subjective personal copyright, in this context in particular the right to the author's name, remains with the author.

2 Guidelines[1]

In order to be able to exploit the above-mentioned potential of OER, in the medium term BFH will assign OER status to as many educational resources created at BFH as possible, in accordance with recommendations of the Open Science Strategy. The following guidelines apply henceforth:

1. BFH recommends that all staff share their educational resources with an open or free licence and make them available on the institutional OER repository.
2. Educational resources developed within the framework of funding programmes or with the support of the Virtual Academy are always shared under an Open Licence.
3. As a rule, CC licences are used for open licensing (cf. information sheet on CC licences).
4. BFH provides the institutional OER repository and ensures its permanent preservation, maintenance and further development and also contributes to the curation of the content.
5. The Virtual Academy is the point of contact at BFH for questions about OER. It is also responsible for planning, steering and implementing university-wide OER activities, and grants access to the OER repository.
6. The Virtual Academy offers continuing education and advice on OER for its core target group, the lecturers.
7. In suitable working groups, the Virtual Academy and the Open Science Office coordinate on issues relating to the interface between the two areas.
8. The schools and divisions create the necessary framework conditions with the support of the Virtual Academy. The objective is to enable staff to create, adapt, integrate, share, and use OER effectively and efficiently.
   The necessary framework conditions are:
   - ➢ Steering the systematic development of staff expertise on OER
   - ➢ Modelling, promoting, and rewarding the culture of sharing
   - ➢ Building quality assurance for OER
   The distribution of roles is as follows:
   - ➢ Defining of (quality) standards: the Virtual Academy monitors the development and quality of OER in teaching and continuing education. Suitable indicators are defined and surveyed. The results are used for continuous improvement.
   - ➢ Compliance with standards/quality criteria: the staff are primarily responsible for the quality of the OER produced (e.g. content, target group, didactics, legal and formal criteria) and for the corresponding licensing and provision on the institutional OER repository; their line managers have secondary responsibility.

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[1]Adapted from the Open Educational Resources Policy at Graz University of Technology under CC-BY 4.0 (TU Graz, 2020)

9. When creating, adapting, integrating, sharing, and using OER, staff are responsible for complying with copyright and licensing regulations in compliance with any school policies. BFH reserves the right to remove OERs from the relevant repositories/systems if they are illegal or incompatible with BFH internal guidelines.
10. BFH actively pursues and supports national and international initiatives on OER and contributes socially to a strengthening of OER.

3 Index of Abbreviations

Abbreviation	Meaning
OER	Open Educational Resources

4 Literature

BFH. *Bern University of Applied Sciences Intellectual Property Policy* (2017).

Gutknecht, P., Reimer, R. T. D., & Lüthi, G. (2020). *Report on the Open Educational Resources (OER) Survey at Swiss Universities*.

Hilton, J., Wiley, D., Stein, J., & Johnson, A. (2010). The four R's of Openness and ALMS Analysis: Frameworks for Open Educational Resources. *Open Learning*, *25*(1), 37–44. https://doi.org/10.1080/02680510903482132

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Miao, F., Mishra, S., Orr, D., & Janssen, B. (2019). *Guidelines on the development of open educational resources policies*. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000371129

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UNESCO. (2012). *Paris OER Declaration*. 3. Retrieved from https://www.unesco.de/sites/default/files/2018-05/Pariser%20Erkl%C3%A4rung_DUK%20%C3%9Cbersetzung.pdf

Open Research Data Policy of Bern University of Applied Sciences (ORD Policy)

Bern, January 2023, Open Science Office
Approved by the University Board on 23 May 2023

1 Initial situation and motivation

BFH recognises research data as an important element for obtaining and communicating scientific knowledge. Research data management is good scientific practice. A forward-looking, comprehensively planned and carefully implemented management system for research data along the entire research process

- ➢ contributes to the quality of scientific work;
- ➢ increases the transparency and thus the trustworthiness of results;
- ➢ enables plausibility and reproducibility of research results;
- ➢ improves the options for the re-use and further use of data and creates legal certainty.

The ORD Policy is part of BFH's Open Science Policy. It serves to further elaborate on and define research data management at BFH regarding the implementation of Open Research Data. The ORD policy is based on the Swiss National ORD Strategy, the Guidelines of the Swiss National Science Foundation on ORD, the provisions of the Regulations on Scientific Integrity at Bern University of Applied Sciences (WissIR) and other legal bases applicable to BFH.

2 Legal basis

Intangible work results created by staff in the course of their professional activities belong to BFH (cf. Art. 54a Bern University of Applied Sciences Act [FaG]). This includes research data. For research data that is published and made freely accessible in the context of ORD, there are no further restrictions on uses of the data, including outside of the employment at BFH. Therefore researchers are explicitly encouraged to publish research data as Open Research Data, in order to ensure legally compliant use of this research data by third parties and outside of the employment at BFH.
Research data produced by BFH students in the course of their student activities belongs to the respective student. Legally non-binding obligations in this policy can be understood by students as recommendations.

2.1 Handling sensitive data

By law, BFH staff are obliged to treat as confidential research data which "by its nature or according to specific directives must be kept secret" (cf. Art. 58 of the Personnel Act).

2.1.1 Data collection and processing
If, in the course of research activities, personal data (in particular data that warrants special protection), or data that is subject to a confidentiality or non-disclosure agreement, is collected or processed, the necessary technical and organisational measures must be taken to ensure the legally prescribed or contractually agreed protection of the data. This includes, in particular, the use of suitable recording and storage systems (e.g. RedCap for medical research data) or suitable security settings in existing systems (e.g. encryption and security settings in Sharepoint).

2.1.2 Publication and archiving:

If the research output (data set, publication, course material, etc.) contains sensitive data, it should not be published without any restrictions in line with Open Science principles. Research outputs that are to be published in line with Open Science principles but contain personal data must first be anonymised by taking suitable technical and organisational measures. In the case of audio-visual data, this involves distorting the image and sound to make it impossible to identify the persons depicted or recorded.

The publication of research findings containing personal data may be permissible if the identification of the persons concerned is necessary in the context of the research work due to their public position, their status as an expert or similar. In any case, consent to the publication of the data must be obtained from the persons concerned.

2.1.3 Categorisation

The 'closed access' publication of research products containing sensitive data should be carried out with data tags and in line with the specifications of the relevant repository or archive. The sensitivity in particular must be determined for each dataset (categorisation).

The following recommendations are to be followed in the categorisation:

- ➢ If there is personal data or other sensitive data that has not been released to the public, it may only be released with prior approval and in anonymised form, or if the recipient has given assurances that the data will be handled in accordance with data protection and/or confidentiality requirements.
- ➢ If any of the personal data or comparable information is of a particularly sensitive[6] nature, approval must be sought before release. Prior to release, the product must be anonymised, and any data deleted that is not to be released. If this is not possible, the release may only proceed after a documented review and only after the recipient has given the assurance that the data will be handled in accordance with data protection laws and/or in a particularly confidential manner.
- ➢ Research data of a more sensitive nature should not be published in an archive or repository that is not specifically designed for this purpose.

The correct categorisation of confidentiality (sensitivity) is the responsibility of the person(s) entering the data. If there are any questions or uncertainties, an enquiry can be made to the BFH Ethics Advisory Group.

3 General requirements

With regard to research data management and Open Research Data, BFH expects that its researchers and lecturers will:

- ➢ plan the handling of research data in projects at an early stage and file any data management plans specified by funding organisations as project documents;
- ➢ publish research data necessary for the reproducibility of published research results (e.g. in publications, conference papers, etc.) – provided its publication is legally permissible;
- ➢ always publish research data on scientific work at BFH as FAIR and Open Research Data, provided that there are no legal grounds to prevent publication;
- ➢ appraise sensitive data with regard to its classification and, if necessary, consider publication in anonymised or pseudonymised form, or in a format approved for publication;

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[6] Personal data is to be classified as particularly sensitive if it contains information about
a. religious, ideological or political views, affiliations and activities as well as racial affiliation;
b. the personal private sphere, in particular a person's mental, spiritual or physical condition;
c. measures of social assistance or welfare care;
d. police investigations, criminal proceedings, criminal offences and the penalties or measures imposed for them. Where no person can be identified, personal data is considered to be non-sensitive even if it relates to an individual's state of health, political or religious views, etc.

- if publication is not possible, the data are to be stored on a suitable, designated archiving platform.

BFH recommends that its researchers and teachers
- draft data management plans in research projects even if there is no obligation to this effect;
- publish the metadata of non-publishable research data and store it in suitable repositories;
- publish and archive datasets on negative results (e.g. data that contradicts or does not support a hypothesis);
- use the ORCID system to ensure that published datasets can be found by BFH for monitoring purposes.

4 Data Management Plans

Some funding organisations and programmes require the handling of research data to be documented with a Data Management Plan (DMP). A DMP must be continuously adapted and updated during the project to take account of any developments.
If necessary, but especially if there are details to be clarified, the data stewards should be involved in the development or review of a DMP. Moreover, DMPs should be filed along with other project documentation in the RIS research information system.

5 Preservation, publication and archiving of research data

The requirements and recommendations listed below supplement the general requirements above.

5.1 Storage

The retention period for research data must be planned in each case on the basis of the legal provisions and internal guidelines, namely the retention and archiving regulations and the Regulations on Scientific Integrity at BFH. The responsibility for the proper handling of research data lies with the project leaders or project managers. Where datasets contain personal data, besides observing the data retention obligations, procedures must be put in place to deal with requests for information or deletion and to ensure they are carried out.

The following requirements apply:
- Research data must be kept for at least five years after completion of the corresponding scientific work or according to contractual agreement with project partners.
- Within this period, any (partial) archiving of the data must be clarified and scheduled, either in a data repository with an archiving function or in the State Archives of the Canton of Bern.
- After expiry of the retention period, any data not worthy of archiving shall be deleted.
- Unpublished data to which publications or data publications refer shall be retained analogously to the publication. If this is not possible for the actual data, the relevant metadata can be archived instead.

5.2 Publication and archiving

When publishing research data, the following points must be taken into account:
- There is an obligation to publish at least the research data that is necessary to reproduce the published research results. First and foremost, this encompasses the research data used in a publication as the basis for graphs, statistics, argumentation and conclusions. It also includes datasets on negative results (e.g. data that contradicts or does not support a hypothesis).
- The further usage of published research data must be regulated with Creative Commons licences. In each case, the licence should be chosen that least restricts the rights of further use.

That is, restrictive licences such as CC-BY-ND or CC-BY-NC should only be used if the subsequent use of the data is subject to legal or contractual restrictions such as licence agreements and usage rules.

➢ For datasets that cannot be published in their entirety, at least the metadata for the dataset is to be published. If possible, supplementary information (methodology, description of the dataset, etc.) should also be published.

➢ For published research data that can be linked to research projects or funding, this link must be documented in a transparent and easy-to-understand way (e.g. with SNSF or Innosuisse project numbers).

➢ For datasets, the key persons involved in the production of the dataset are to be listed as authors.

➢ The contribution of each of the listed authors to the dataset is to be described in the metadata or in additional documents filed with the dataset.

➢ For the archiving of research data, the retention and archiving regulations must be taken into account.

6 FAIR and Open Research Data

BFH expects its research and teaching staff to publish research data on academic work at BFH as 'FAIR and Open Research Data' as a matter of principle, provided that there are no legal reasons for not doing so (cf. Art. 15 WissIR). Such reasons would be:

➢ Provisions of the Human Research Act (HRA) and any requirements of a cantonal ethics committee or comparable bodies;

➢ Provisions of cantonal, national, and international data protection laws; and

➢ Contractual agreements such as non-disclosure agreements, consortium agreements, data-usage agreements, licensing provisions, etc.

When choosing a repository for publishing and archiving research data, preference should be given to repositories that meet the SNSF's requirements for data repositories, namely publicly accessible, non-commercial repositories that meet the FAIR criteria. To ensure that a repository meets the above-mentioned standards, please consult the directory https://www.re3data.org/. Publication in the institutional area of BFH in the data repository OLOS is expressly recommended.