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Duty of inspection and right of objection:

In accordance with Section 12 of the Higher Education Act of North Rhine-Westphalia (Hochschulgesetz – HG NRW), procedural or validity violations of higher education law, other applying regulations or other forms of autonomous university law can no longer be asserted after one year has expired since the publication of these Guidelines. Exceptions can be made if

1. the Guidelines were not published in the prescribed manner,
2. the Rectorate has in advance objected to the decision of the committee responsible for ratification,
3. flaws in form and procedure have been asserted against the University in advance describing the violated legal provision and fact causing the flaw, or
4. upon publication, the legal consequences of the limitation period for inspection and objection were not clarified.

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Guidelines of the University of Cologne on Good Research Practice

as of 25 January 2022

Pursuant to Sections 2 (4) (1), and 4 (4) (3) of the Higher Education Act of the State of North Rhine-Westphalia (Hochschulgesetz – HG) in the version of the Higher Education Future Development Act (Hochschulzukunftsgesetz – HZG NRW) of 16 September 2014 (GV. NRW p. 574), last amended by Article 1 of the Act on Further Amendments to the Higher Education Act and the Higher Education Act for the Arts of 25 November 2021 (GV. NRW p. 1210a), the University of Cologne enacts the following Guidelines:

Preamble

Pursuant to Section 4 (4) of the Higher Education Act of the State of North Rhine-Westphalia (HG), all academic staff as well as students at the University are obligated to academic honesty.

Academic honesty forms the basis of trustworthy science and scholarship. It is an expression of academic self-commitment that includes respectful treatment of one another, study participants, animals, cultural assets, and the environment, and it strengthens and promotes society's indispensable trust in science and scholarship. The constitutionally guaranteed freedom of science and scholarship is inseparably linked to a responsibility to uphold these values. It is the primary task of every scholar and scientist and of the institutions in which science is organized to take this responsibility fully into account as a guideline for their actions. Science and scholarship themselves ensure good academic practice through honest thought and action, and not least of all through organizational and procedural regulations.

The Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) supports higher education institutions in this endeavour. To this end, it has adopted new 'Guidelines for Safeguarding Good Research Practice' in 2019. The present 'Guidelines of the University of Cologne on Good Research Practice' are largely based on the DFG's guidelines. Formulations have been adopted in part indirectly, in part directly. They define the principles of good academic practice. The investigation of academic misconduct is governed by the Regulations for the Investigation of Academic Misconduct of the University of Cologne of 25 January 2022.

Part 1 General provisions

Section 1

Commitment to general principles

(1) Every scholar and scientist at the University of Cologne shall adhere to the principles of good research practice within the scope of his/her/their activities. The principles of good research practice aim at honesty in the achievement of research results and their publication. Academic correctness and honesty with regard to knowledge gained must be protected. This includes working *lege artis*, maintaining strict honesty with regard to one's own and others' contributions, consistently questioning all results, and allowing and encouraging critical discourse in the scientific community.

(2) Specifically, this includes the following:

- to neither falsify nor fabricate data
- the complete documentation of all data collected in the research process and relevant for publication
- the comprehensible description of the methods used
- a verifiable presentation of the research results
- the correct use of illustrations or figures
- correct citation
- refraining from blind citations
- the recognition of the rights of others with regard to copyrighted works created by them or essential scientific findings, hypotheses, doctrines or research approaches originating from them by omission
- the unauthorized exploitation with presumption of authorship (plagiarism),
- the exploitation of research approaches and ideas of others (theft of ideas),
- the presumption of scientific authorship or co-authorship,
- falsification of the content or
- the unauthorized publication and the unauthorized making accessible to third parties as long as the work, the finding, the hypothesis, the teaching or the research approach has not yet been published,
- claiming another person's (co-)authorship only with his/her/their consent
- not to hinder others in their research activities in any way, e.g. by sabotage (including damaging, destroying or manipulating literature, archival and source material, experimental arrangements, equipment, records, hardware, software, chemicals or other things needed by another person to carry out a research project).

(3) The rules of these Regulations are binding for all researchers at the University of Cologne.

Section 2

Professional ethics

(1) Every head of a research group and every faculty member or lecturer shall behave in an exemplary academic manner. Experienced scientists and scholars shall encourage and support students and early-career researchers in carrying out their academic work honestly and responsibly. This includes raising awareness of the possibility of academic misconduct.

(2) Researchers are responsible for reflecting the fundamental values and standards of academic work in their actions and for standing up for them. Teaching the fundamentals of good scientific work begins at the earliest possible stage in academic teaching and scientific training. Researchers at all career levels should regularly update their knowledge of the standards of good academic practice and the state of research.

(3) Experienced researchers as well as early-career researchers should support one another in the continuous learning and training process and engage in regular exchange.

Section 3

Organizational responsibility

(1) The University of Cologne creates the framework conditions for academic work. The framework conditions include clear and written procedures and principles of staff selection and development as well as the promotion of early-career researchers and equal opportunities.

(2) The Rectorate of the University of Cologne is responsible for ensuring that good research practice is observed and communicated, and that all researchers receive appropriate career support. The Rectorate guarantees the conditions for researchers to comply with legal and ethical standards.

(3) The Rectorate shall be responsible for an appropriate institutional organizational structure. This shall ensure that, depending on the size of the individual academic work units, the tasks of management, supervision, quality assurance, and conflict regulation are clearly assigned and communicated to the respective members and affiliates.

(4) Gender equality and diversity are taken into account in staff selection and development. The procedures are transparent and avoid, as far as possible, unconscious bias and other unintentional influences. Appropriate support structures and concepts are established for early-career researchers. Sincere advice for career and further career paths as well as further training opportunities and mentoring for academic and research support staff are offered.

Section 4

Responsibility of heads of research units

(1) The management of a research unit or a community of author carries responsibility for the entire unit. Cooperation in academic units must be organized in such a way that the group as a whole can fulfil its tasks, that the cooperation and coordination necessary for this purpose are ensured, and that all members are aware of their roles, rights, and duties.

(2) Management also includes, in particular, ensuring appropriate individual supervision of early-career researchers – embedded in the overall concept of the respective institution – as well as career advancement of the academic or research support staff. There must be a primary contact person in the working group for each early-career researcher.

(3) The size and organization of the academic unit shall be such that the management tasks, in particular the transfer of competencies, academic support as well as the supervisory and mentoring duties can be performed appropriately.

(4) Researchers as well as research support staff shall work under conditions of a balance between support and personal responsibility appropriate to their career level. They are accorded adequate status with corresponding rights of participation. They are empowered to shape their careers through increasing autonomy.

(5) Abuse of power and exploitation of relationships of dependence shall be prevented by appropriate organizational measures, both at the level of the individual academic unit and at the level of the management of academic institutions.

(6) Students, graduates, and doctoral candidates shall be adequately supervised within the framework of their activities in academic working groups. A primary contact person shall be appointed for each of them in the working group. Supervision includes conveying good research practice, also on the basis of the regulations established for this purpose by the University of Cologne.

Section 5

Dimensions of leadership and assessment criteria

(1) Originality and quality take precedence over quantity as performance and evaluation criteria for examinations, for awarding academic degrees, for promotions, hiring, appointments, and resource allocations. Quantitative indicators can only be included in the overall evaluation in a differentiated and reflected manner.

(2) In addition to academic performance, other aspects may be taken into account, such as commitment to academic self-administration, public relations, knowledge and technology transfer; contributions in the interest of society as a whole may also be recognized. The academic conduct of the scholar or scientist, including his/her/their openness to knowledge and willingness to take risks, is also taken into account.

(3) Appropriate consideration will be given to personal, family or health-related absences or resulting longer periods of training or qualification, alternative career paths or comparable circumstances.

(4) If they are voluntarily communicated, individual circumstances in CVs shall also be included in assessments in addition to the categories defined in the General Equal Treatment Act.

Part 2

Research process

Section 6

Ensuring quality across phases

(1) Researchers perform each step in the research process *lege artis* and ensure continuous quality assurance during the research, in particular with regard to

- compliance with subject-specific standards and established methods,
- processes such as the calibration of instruments,
- the collection, processing and analysis and, as far as reasonable and possible, the replicability of research data,
- the selection and use of research software and its development and programming,
- the keeping of laboratory records.

(2) When research findings are made publicly available, the quality assurance mechanisms used shall always be made transparent. This applies in particular when new methods are developed.

(3) If discrepancies or errors are discovered after publication, they should be corrected. If the discrepancies or errors are sufficient reason for the retraction of a publication, researchers shall cooperate with the publisher or infrastructure provider etc. as quickly as possible to ensure that the correction or retraction is made and transparently communicated. The same applies if scholars or scientists are informed of such discrepancies or errors by third parties.

(4) The origin of data, organisms, materials, and software used in the research process shall be identified and the subsequent use shall be documented; the original sources shall be cited. The nature and extent of research data generated in the research process are described. The handling of such data is designed in accordance with the requirements of the subject concerned. The source code of publicly available software must be persistent, citable and documented.

Section 7

Stakeholders, responsibilities, and roles

The roles and responsibilities of the scholars or scientists involved in a research project as well as of the research support staff must be clear at all times over the course of a research project. The participants of a research project are in regular exchange. They define their roles and responsibilities in an appropriate manner and adjust them if necessary. An adjustment is called for particularly if the work focus of one of the participants in the research project changes.

Section 8

Research design

(1) When planning a project, researchers shall take full account of and acknowledge the current state of research. The identification of relevant and suitable research questions

requires a careful reading of research achievements that have already been made publicly available. The University creates the necessary framework conditions for this.

(2) Methods to avoid (unconscious) bias in the interpretation of findings, for example blinding of experimental series, are applied as far as possible. Researchers examine whether and, if so, to what extent gender and diversity may be significant for the research project (with regard to the methods, the work programme, the goal, etc.). When interpreting findings, the applying framework conditions are taken into account.

Section 9

Legal and ethical frameworks, usage rights

(1) Researchers comply with rights and obligations, particularly those arising from legal requirements and contracts with third parties, and where necessary seek approvals and ethics statements and present these when required. With regard to research projects, the potential consequences of the research should be evaluated in detail and the ethical aspects should be assessed.

(2) Researchers maintain a continual awareness of the risks associated with the misuse of research results. Their responsibility is not limited to compliance with legal requirements but also includes an obligation to use their knowledge, experience, and skills such that risks can be recognized, assessed, and evaluated. They pay particular attention to the aspects associated with security-relevant research (dual use). For this purpose, they shall consult the Commission for the Assessment of Safety-Relevant Research with Significant Hazard Potential (FEG) of the University of Cologne.

(3) Where possible and practicable, researchers conclude documented agreements on usage rights at the earliest possible point in a research project. In particular, the researcher who collected the data is entitled to use them. During a research project, those entitled to use the data decide whether third parties should have access to them (subject to data protection regulations).

Section 10

Methods and standards

(1) To answer research questions, researchers use scientifically sound and appropriate methods. If necessary, the specific competencies required for the application of a method are ensured by close collaborations.

(2) When developing and applying new methods, they attach particular importance to quality assurance and the establishment of standards.

Section 11

Documentation

(1) Researchers shall document all information relevant to the achievement of a research result as comprehensibly as is required and appropriate in the relevant subject area to allow the result to be assessed and reviewed. This includes, in particular, storing the used or generated research data; the steps in methodology, evaluation, and analysis as well as, if applicable, the origin of the hypothesis; ensuring the transparency of citations and, as far as possible, allowing third parties access to this information. If research software is developed, the source code must be documented. In principle, the documentation also includes individual results that do not support the research hypothesis. A selection of results must be avoided in this context. If the documentation does not satisfy these requirements, the constraints and the reasons for them are clearly explained.

(2) Where subject-specific recommendations exist for review and assessment, researchers create documentation in accordance with these Guidelines.

(3) Documentation and research results must not be manipulated; they must be protected as best as possible against manipulation.

Section 12

Providing public access to research results

(1) As a rule, researchers make all results available as part of scientific/academic discourse. Researchers decide autonomously – with due regard for the conventions of the relevant subject area – whether, how and where to deviate from this principle and decide against disseminating their results; the decision may not be made dependent on third parties.

(2) Publications of research results shall describe them completely and comprehensibly. This also includes, as far as this is possible and reasonable, making available the research data, materials and information on which the results are based, the methods applied and the software used, and comprehensively describing work processes. Self-programmed software will be made publicly available with indication of the source code. Scientists shall provide complete and correct evidence of their own and others' preliminary work.

(3) Inappropriately small publications are to be avoided. Scientists limit the repetition of the contents of their publication as (co-)authors to the extent necessary for understanding the context. They cite their results that have already been made publicly available, unless this can be dispensed with in exceptional cases according to the discipline-specific self-image.

Section 13

Archiving

When research findings are made publicly accessible, depending on the subject area the research data used (usually raw data) are generally stored and kept accessible for a period of ten years at the institution where they were created, or in repositories serving several

research institutions. The person responsible for the given research project or publication must ensure this. More detailed information on the handling of research data can be found in the 'Guidelines for the Handling of Research Data at the University of Cologne'.

Section 14

Authorship

(1) An author is an individual who has made a genuine, identifiable contribution to the content of a research publication of text, data or software. All authors agree on the final version of the work to be published. Unless explicitly stated otherwise, they share responsibility for the publication.

(2) What constitutes a genuine and identifiable contribution must be evaluated on a case-by-case basis and depends on the subject area in question. An identifiable, genuine contribution is deemed to exist particularly in instances in which a researcher – in a research-relevant way – takes part in

- the development and conceptual design of the research project, or
- the gathering, collection, acquisition or provision of data, software or sources, or
- the analysis/evaluation or interpretation of data, sources and conclusions drawn from them, or
- the drafting of the manuscript.

(3) Honorary authorship where no such contribution was made is not permissible. A leadership or supervisory function does not itself constitute co-authorship.

(4) The publication and exploitation of scientific results that result from collaboration in a working group must ensure that the individual rights (e.g. copyrights) of all members of the working group – even if they leave the group – are taken into account and identified.

(5) Authors shall ensure as far as possible that their research contributions are marked by the publishers or infrastructure providers in such a way that they can be correctly cited by users. The contribution must be made to the scientific content of the publication.

(6) Collaborating researchers agree on authorship of a publication. The decision as to the order in which authors are named is made in good time, normally no later than when the manuscript is drafted, and in accordance with clear criteria that reflect the practices within the relevant subject areas. Researchers may not refuse to give their consent to publication of the results without sufficient grounds. Refusal of consent must be justified with verifiable criticism of data, methods or results.

(7) If a contribution is not sufficient to justify authorship, such support may be appropriately acknowledged in footnotes, in the preface, or in the acknowledgements.

Section 15

Publication medium

(1) Authors select the publication medium carefully, with due regard for its quality and visibility in the relevant field of discourse. In this context, the scientific/academic quality of a contribution does not depend solely on the medium in which it is published. A new or unknown publication organ has to be checked for its seriousness. An important criterion in the selection decision is whether the publication organ has developed its own guidelines for good research practice.

(2) Repositories or blogs can also be taken into consideration as publication organs in accordance with Section 15 (1).

(3) Researchers who assume the role of editors carefully consider for which publication organs they assume this task.

Section 16

Confidentiality and neutrality of the review process and discussions

(1) Researchers who evaluate submitted manuscripts, funding proposals or personal qualifications are obliged to maintain strict confidentiality with regard to this process. The confidentiality of third-party material to which a reviewer or committee member gains access precludes sharing the material with third parties or making personal use of it.

(2) Researchers immediately disclose to the responsible body any potential or apparent conflicts of interest, bias or favouritism relating to the research project being reviewed or the person or matter being discussed and clarify all facts that might give rise to concerns of bias.

(3) The obligation to maintain confidentiality and to disclose facts that could give rise to concerns of bias shall also apply to members of scientific advisory and decision-making bodies.

Part 3 Concluding provisions

Section 15

Entry into force

With the entry into force of these Regulations, the Guidelines for Ensuring Good Academic Practice and for Dealing with Academic Misconduct of 19 November 2020 (Amtliche Mitteilungen 132/2020) shall cease to apply.

Issued by resolution of the Senate of the University of 19 January 2022.

Cologne, 25 January 2022

signed
The Rector
of the University of Cologne

Professor Dr Axel Freimuth