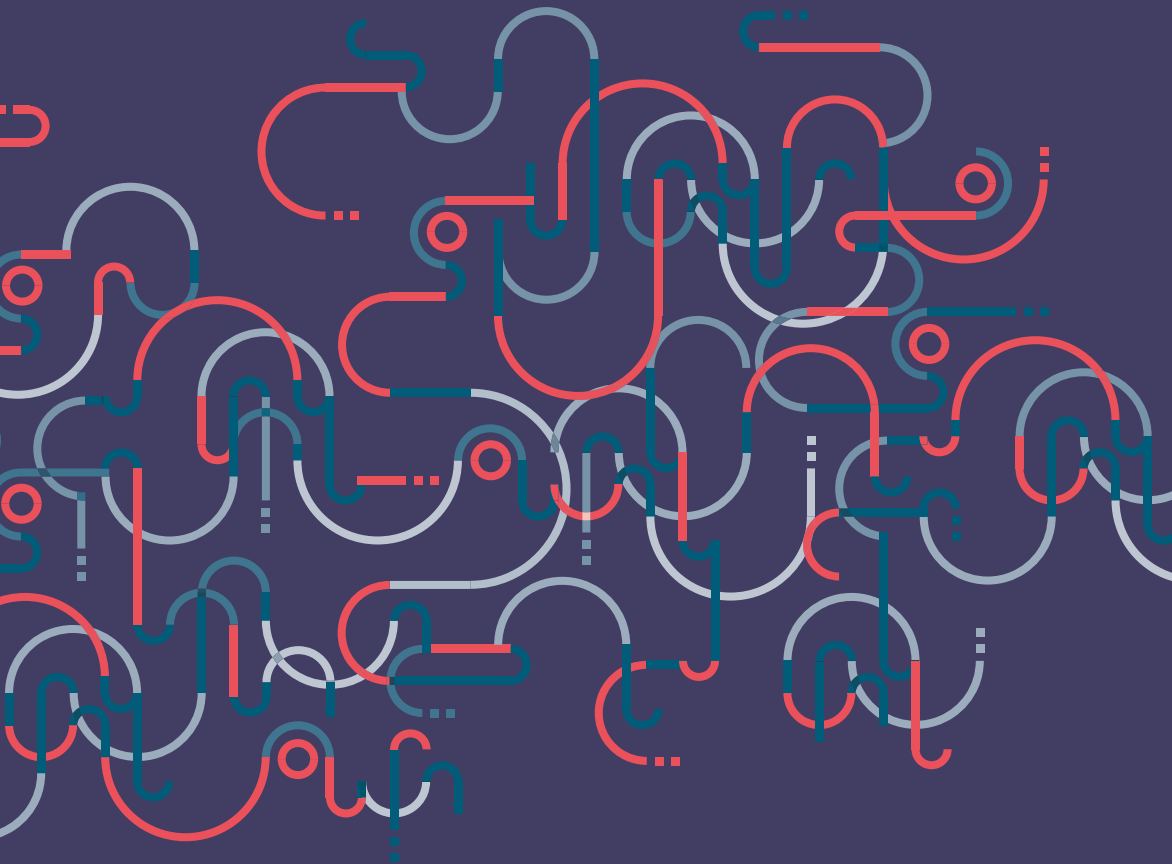


Code of conduct for scientific integrity

swiss-academies.ch





With this publication, the Swiss Academies of Arts and Sciences are making a contribution to SDGs 4, 5, and 17.

- > un.org/sustainabledevelopment/sustainable-development-goals
- > eda.admin.ch/agenda2030/en/home/agenda-2030/die-17-ziele-fuer-eine-nachhaltige-entwicklung.html



Code of conduct for scientific integrity

Publication details

PUBLISHER

Swiss Academies of Arts and Sciences • Laupenstrasse 7 • P.O. Box • 3001 Bern • Switzerland
+41 31 306 92 20 • info@swiss-academies.ch • swiss-academies.ch

 [academies_ch](#)  [swiss_academies](#)  [Swiss Academies of Arts and Sciences](#)

CONTACT PERSON

Commission on Scientific Integrity

Karin M. Spycher, Head of the Commission on Scientific Integrity

Swiss Academies of Arts and Sciences • Laupenstrasse 7 • Postfach • 3001 Bern • Switzerland

+41 31 306 92 20 • integrity@swiss-academies.ch • go.swiss-academies.ch/integrity

AUTHORS

- Aebi-Müller Regina E., University of Lucerne, Swiss National Science Foundation
- Blatter Inge, Swiss National Science Foundation
- Brigger Joël, Innosuisse
- Constable Edwin Charles, University of Basel, Swiss Academies of Arts and Sciences
- Eglin Noëmi, [swissuniversities](#)
- Hoffmeyer Pierre, University of Geneva, Swiss Academies of Arts and Sciences
- Lautenschütz Claudia, Swiss National Science Foundation
- Lienhard Andreas, University of Bern, [swissuniversities](#)
- Pirinoli Christine, HES-SO University of Applied Sciences and Arts, Western Switzerland, [swissuniversities](#)
- Röthlisberger Markus, Swiss National Science Foundation
- Spycher Karin M., Swiss Academies of Arts and Sciences

TRANSLATION

Trad8 Särl, Delémont

EDITING/PROOFREADING

- [books&rights](#), Zurich (EN)
- Grundbacher Danièle, Bern (FR)
- Loringhett Dimitri, USI, Lugano (IT)
- Marcon Delia, Swiss Academies of Arts and Sciences, Bern (IT)
- Zurbuchen Christine, Swiss Academies of Arts and Sciences, Bern (DE)

LAYOUT

PUSH'N'PULL, Bern

PRINTING

Vögeli AG, Langnau

1st impression. Code of conduct for scientific integrity can be obtained free of charge from the Swiss Academies of Arts and Sciences.

Copyright: ©2021 Swiss Academies of Arts and Sciences. This is an open-access publication, licensed under the Creative Commons Attribution licence (<http://creativecommons.org/licenses/by/4.0/>). The content of this publication may therefore be used, shared, and reproduced without restriction and in all forms, provided that the author and source are appropriately acknowledged.

ISSN (print): 2297-8275 / ISSN (online): 2297-184X

SUGGESTED CITATION

Swiss Academies of Arts and Sciences (2021): Code of conduct for scientific integrity. go.swiss-academies.ch/integrity. <http://doi.org/10.5281/zenodo.4707560>.

Executive summary

The scientific¹ landscape has changed considerably since the Swiss Academies of Arts and Sciences published *Integrity in scientific research: Principles and procedures* in 2008. Consequently, an expert group was set up with members from the Swiss Academies of Arts and Sciences, the Swiss National Science Foundation, swissuniversities, and Innosuisse to review the changes that have taken place in recent years and to draw up this **Code of conduct for scientific integrity**. This Code is aimed at everyone involved in the generation, dissemination, and advancement of knowledge within the Swiss higher education system. This includes scientists, institutions, and funding organisations. Institutions and funding organisations have a special role to play in creating and maintaining the conditions in which scientific integrity can thrive.

Scientific integrity is based on the observance of fundamental principles and their many different contextual concretisations. These principles guide scientists in their research and teaching and help them to deal with the practical, ethical, and intellectual challenges they can expect to encounter. The aim of this code of conduct is to promote appropriate attitudes and to help build a robust culture of scientific integrity that will stand the test of time. **Ethical scientific behaviour** rests on the basic principles of reliability, honesty, respect, and accountability and supports the concretisations of these basic principles within a specific frame of reference.

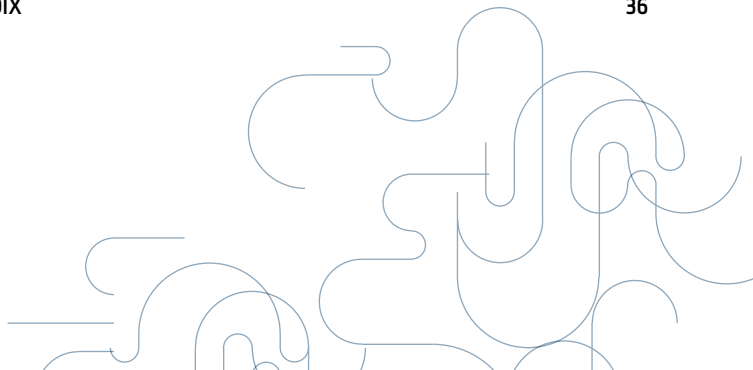
This Code is intended to be a dynamic document. Its aim is to strengthen scientific integrity in all avenues of research and education, with a particular emphasis on the training and development of young people. Another of its aims is to establish a culture of research integrity in the scientific community, with the Code providing a welcome framework rather than imposing its own set of rules. It promotes common understanding and parity of treatment in dealing with violations of scientific integrity within and between institutions. The Code also considers current developments in the fields of Open Science and social media, and it examines the issue of time limitation from several points of view. In addition, it offers practical recommendations on how to set up an organisation for the protection of scientific integrity and describes the processes involved.

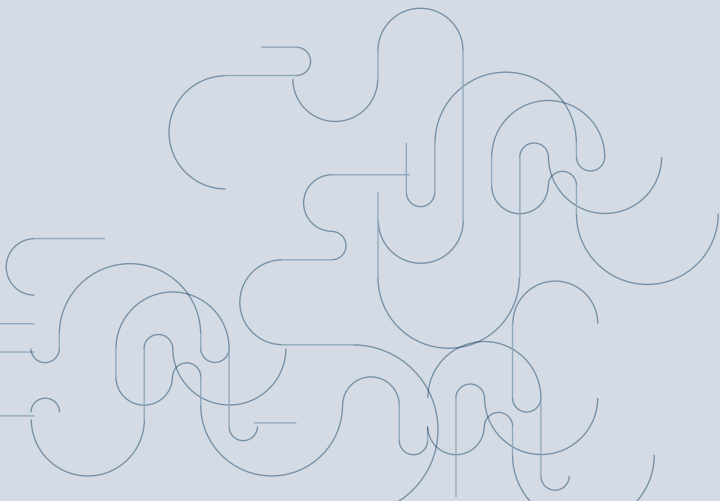
¹ The words *science*, *scientific*, etc. are used in the German sense and refer to everything involved in the generation, dissemination, and advancement of knowledge.

Contents

Executive summary	5
Acknowledgements	9
Declaration of intent	10
1. Introduction	11
2. Objectives and target groups	13
3. Basic principles of scientific integrity	15
3.1 Definition	15
3.2 Basic principles of scientific integrity	15
4. Implementation of the basic principles	17
4.1 Fundamentals and structures	17
4.2 Institutional collaboration	17
4.3 Publication and dissemination	18
4.4 Authorship	18
4.5 Data management	19
4.6 Assessment and evaluation	20
4.7 Research process	20
4.8 Private funding	20
5. Violations of scientific integrity	22
5.1 Legal classification	22
5.2 Understanding the concept of violation	22
5.2.1 Preliminary observation	22
5.2.2 Fabrication	22
5.2.3 Falsification	23
5.2.4 Plagiarism	23
5.2.5 Misconduct pertaining to authorship	23
5.2.6 Incorrect publication lists	24
5.2.7 Improper handling of data and research materials	24

5.2.8	Misconduct in collaborative projects	24
5.2.9	Misconduct in connection with expert reports and peer reviews	25
5.2.10	Misconduct in research misconduct proceedings	25
5.2.11	Other forms of scientific misconduct	25
6.	Review body and review policies	27
6.1	Preliminary observation	27
6.2	Competence	27
6.3	Review body	28
6.3.1	Advice and arbitration	28
6.3.2	Investigation	29
6.3.3	Decision	29
6.3.4	Appeals	30
6.4	Procedural principles	30
6.4.1	Initiation of the procedure	30
6.4.2	Hearing	30
6.4.3	Legal assistance	30
6.4.4	Documentation and access to files	32
6.4.5	Confidentiality	32
6.4.6	Bias and avoiding conflicts of interest	32
6.4.7	Anonymous reports	32
6.4.8	Information and communication	33
6.4.9	Data exchange	33
6.4.10	Limitation	34
6.5	Sanctions	35

APPENDIX**36**



Acknowledgements

We wish to say a big thank you to the members of the Expert Group on Scientific Integrity who, in addition to the regular meetings, have invested many hours of work in drafting this Code of conduct. This Code of conduct would never have been drawn up in its present form without the support of their knowledge and experience. We would also like to thank the staff of the secretariats of swissuniversities, the Swiss National Science Foundation and Innosuisse for their great willingness to develop joint objectives and achieve them with great perseverance.

MARCEL TANNER

President, Swiss Academies of Arts and Sciences

Declaration of intent

The Code of conduct for scientific integrity describes a common understanding of scientific integrity and defines which responsibilities follow from this understanding, along the lines of best practices. It serves as a basis for universities, other institutions, and funding organisations to review, further clarify and supplement their own guidelines in the coming years.

The organisations involved in the drafting of the Code of conduct – the Swiss Academies of Arts and Sciences, swissuniversities, the Swiss National Science Foundation and Innosuisse – are committed to this Code as a basis for implementation in the individual institutions. They are convinced that the Code of conduct contributes to the clarity and coherence of the academic sector and strengthens not only scientific integrity as such but also excellence in research and teaching – and ultimately Switzerland as a centre of knowledge. The participating institutions work to ensure that scientific integrity is practised in the scientific community and that misconduct can be avoided.

MARCEL TANNER
Swiss Academies of Arts and Sciences

CLAUDIA APPENZELLER
Swiss Academies of Arts and Sciences

MATTHIAS EGGER
Swiss National Science Foundation

ANGELIKA KALT
Swiss National Science Foundation

YVES FLÜCKIGER
swissuniversities

MARTINA WEISS
swissuniversities

ANDRÉ KUDELSKI
Innosuisse

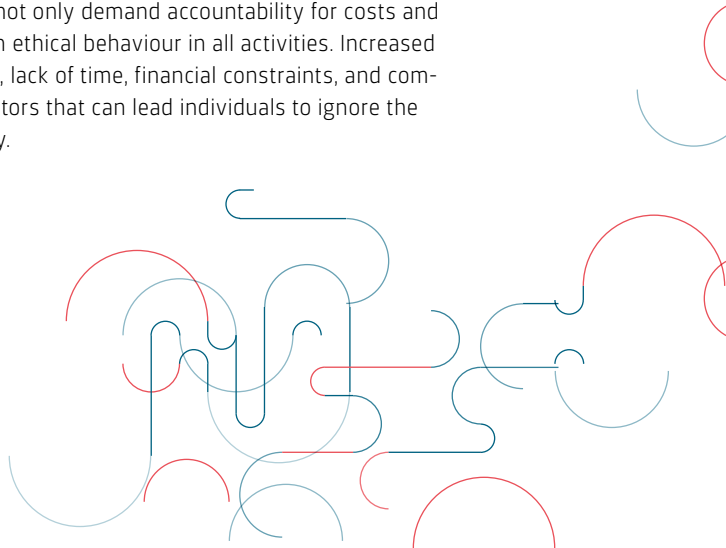
ANNALISE EGGIMANN
Innosuisse

1. Introduction

There is an expectation in today's society that individuals will behave ethically, and no more so than in the scientific environment. Scientific autonomy brings with it great responsibility and an obligation to self-observe, self-regulate and act with integrity at all times. Institutions and funding organisations provide the necessary basis for this.

Reliability, honesty, respect, and accountability are the basic principles of scientific integrity. They underpin the independence and credibility of science and its disciplines as well as the accountability and reproducibility of research findings and their acceptance by society. As a system operating according to specific rules, science has a responsibility to create the structures and an environment that foster scientific integrity.

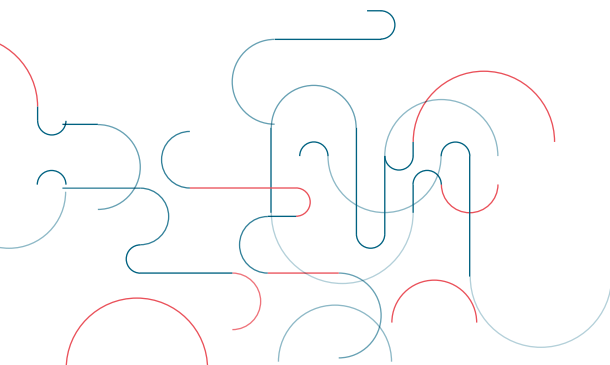
The scientific environment has changed considerably since the Swiss Academies of Arts and Sciences published *Integrity in scientific research: Principles and procedures* in 2008. For example, the work of Open Science has made it possible for researchers to access a growing collection of databases and research results. At the same time, technological developments have led to more networking between fellow scientists, which has also opened up new avenues of communication and publication in social media and other virtual spheres. While these developments offer new opportunities and increase transparency, they require more attention to be paid to scientific integrity. At the same time, scientific research and teaching are attracting growing scrutiny from private and public interest groups, the public, and national and international politicians – all of whom not only demand accountability for costs and benefits but also insist on ethical behaviour in all activities. Increased administrative workloads, lack of time, financial constraints, and competitive pressures are factors that can lead individuals to ignore the rules of scientific integrity.



It is against this background that we are introducing an updated version of *Integrity in scientific research: Principles and procedures* – originally published in 2008 – under its new title: ***Code of conduct for scientific integrity***.

The Code begins with a description of its objectives and its target audience (→ Chapter 2). It outlines the basic principles of scientific integrity and their implementation (→ Chapters 3 and 4), describes conduct that violates scientific integrity (→ Chapter 5) and recommends structures and procedures for dealing with these violations (→ Chapter 6). The Appendix explains why some violations of scientific integrity can also be violations of the law and provides examples of some of these laws.

This Code provides a basis for the regulations and guidelines on scientific integrity issued by institutions and funding organisations. All organisations working in the scientific environment should observe the standards of this Code, while also defining their own more specific internal rules and making them binding on their members.



2. Objectives and target groups

This Code has the following **aims**:

- To help promote responsible conduct in every area of scientific research and education. A strong culture of scientific integrity is of great value to the scientific community, especially in connection with the training and development of young scientists (prevention).
- To promote a common understanding of behaviour that violates scientific integrity. By doing this, the Code helps to ensure consistency, efficiency, and transparency in identifying and dealing with violations of scientific integrity and thus contributes to their prevention.
- To promote equal treatment across institutions that have to deal with violations of scientific integrity. The Code identifies a set of principles for organising procedures and dealing with violations of scientific integrity.
- To provide a basis for regulations and guidelines on scientific integrity issued by institutions and funding organisations.²

To achieve these aims, this Code provides **basic principles and recommendations**:

- Basic principles (→ Chapter 3 Basic principles of scientific integrity) and cross-disciplinary and cross-institutional fundamentals on scientific integrity (→ Chapter 4 Implementation of the basic principles) and violations (→ Chapter 5 Violations of scientific integrity). These do not rule out further regulations or clarifications.
- Recommendations on procedures involved in setting up an organisation to protect integrity (→ Chapter 6 Review body and review policies). Implementation itself takes place within the framework of the regulations and responsibilities of institutions and funding organisations.

² The Federal Act on the Promotion of Research and Innovation (RIPA) of 14 December 2012 stipulates that research funding institutions (Art. 12 para. 3) and university research institutions (Art. 26 para. 1 let. b and c) must provide guidelines or rules on scientific integrity.

³ For example, seminar work.

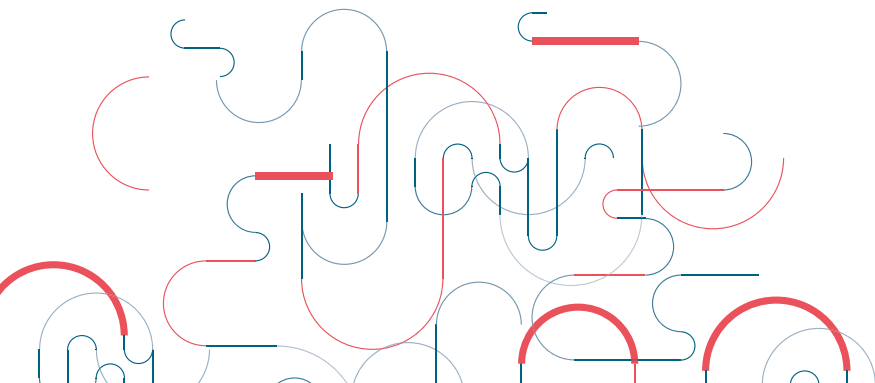
This Code is aimed at everyone in the Swiss higher education system involved in the generation, dissemination and advancement of knowledge.

This includes the following specific groups:

- scientists, including both researchers and those engaged in teaching, and students engaged in all levels of scientific activity³ (hereinafter “scientists”)
- Swiss federal universities, cantonal universities, universities of applied sciences, teacher training universities, university hospitals and other educational and research institutions (hereinafter “institutions”);

- funding organisations such as the Swiss Academies of Arts and Sciences, the Swiss National Science Foundation (SNSF), and the Swiss Innovation Agency (Innosuisse) (hereinafter “funding organisations”).

This Code provides a blueprint for the more specific internal rules drawn up by institutions and funding organisations. The Code is declared to be the applicable or supplementary standard for scientific collaborations. In particular, it also serves as a working basis for businesses and publishers in the scientific environment.



3. Basic principles of scientific integrity

3.1 Definition

Scientific integrity is based on the observance of fundamental principles and their many different contextual actualisations. These principles guide scientists in their research and teaching and help them to deal with the practical, ethical, and intellectual challenges they are likely to encounter. This code of conduct aims to promote appropriate attitudes and to help build a robust culture of scientific integrity that will stand the test of time.

Ethical scientific behaviour

- requires a commitment to the basic principles of reliability, honesty, respect, and accountability (→ 3.2 Basic principles of scientific integrity) and
- complies with the actualisations of these basic principles within a specific frame of reference.

The concretisation of these basic principles is often discipline-specific and may be referred to as **good scientific practice**. This may include, for example, guidelines on study design, citation rules, and good practices in publication and authorship. Similar standards have been defined by (inter)national professional associations, academies, institutions, or their departments and faculties; these standards are considered binding and good scientific practice by their scientific communities. All these texts contribute to the definition of scientific integrity.

This Code describes the basic cross-disciplinary principles of scientific integrity and their implementation.

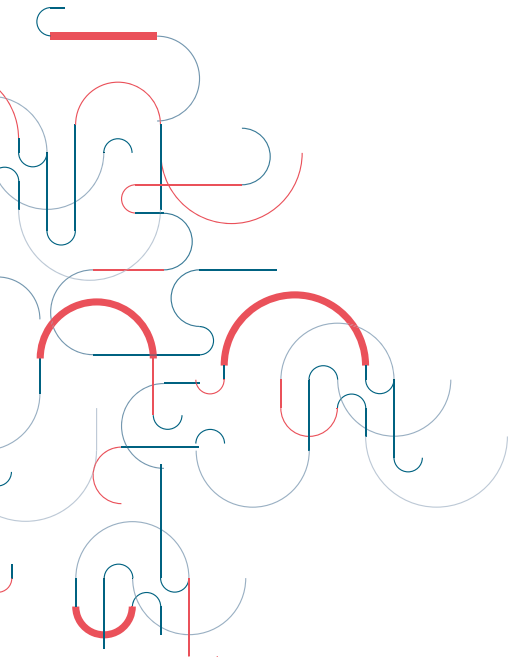
3.2 Basic principles of scientific integrity

The principles of scientific integrity are effectively summarised in *The European Code of Conduct for Research Integrity* (ALLEA, 2017).⁴ ALLEA's code of conduct served as the basis for the four basic principles of this Code. These principles are consistent with the guiding principle of scientific duty of care and apply unconditionally and to all disciplines:

- **RELIABILITY** in ensuring the quality of research and teaching in order to maximise the credibility of, and trust in, science. Reliability is reflected in particular in the design, methodology, and analysis of research; it involves both transparency and traceability.

⁴ All European Academies (ALLEA) (2017) *The European Code of Conduct for Research Integrity*, <https://allea.org/code-of-conduct/> (accessed 3 Dec. 2020).

- **HONESTY** in developing, designing, undertaking, reviewing, reporting and communicating research and teaching activities. These activities should be carried out in a transparent manner with a view to achieving maximum impartiality.
- **RESPECT** for colleagues, students, study and research participants, society, our cultural heritage, ecosystems and the environment. Due consideration should be given to the diversity and life experience of all persons involved.
- **ACCOUNTABILITY** for research – from an idea to its valorisation and transfer – and for its administration and organisation as well as for training, supervision, mentoring, and the careful use of resources.



4. Implementation of the basic principles⁵

The basic principles of scientific integrity (→ **Chapter 3 Basic principles of scientific integrity**) should be put into practice by defining standards.⁶ These standards encourage a culture of scientific integrity.

4.1 Fundamentals and structures⁷

- Institutions and funding organisations have a responsibility to ensure that all the fundamental principles of scientific integrity form an integral part of their culture. They should therefore establish an integrity unit (→ **6.1 Preliminary observation**) with a remit to raise awareness, hold training courses, and provide access to information such as regulations.
- Institutions, funding organisations, and scientists are obliged to incorporate the basic principles into the teaching, training, and professional development of all students and scientists at each stage of their career. Scientific integrity is a fundamental part of education and training.
- Institutions and funding organisations need to demonstrate a commitment to transparent, honest, moral, and ethical procedures when dealing with appointments, promotions, and commissions and when selecting committee members.⁸
- Institutions and funding organisations need to have in place swift and transparent procedures for investigating possible violations of scientific integrity and, if necessary, involve an appropriately authorised specialist body (→ **Chapter 6 Review body and review policies**).
- Institutions and funding organisations should ensure that they have an appropriate and transparent catalogue of sanctions at their disposal. If scientific misconduct is proven during a review procedure, it will be sanctioned with due consideration for proportionality and non-discrimination and, where necessary, in coordination with other institutions and funding organisations with which the person concerned is associated.

4.2 Institutional collaboration⁹

- Scientific work often involves the participation of several different partners – for example, inter-faculty or inter-institutional collaborations, (inter)national research consortia, or activities with external partners such as funding organisations or other public or private partners. In any collaboration, all partners have a shared responsibility for the integrity of the research.

⁵ Some of the descriptions and content of this Code are based in part on *The European Code of Conduct for Research Integrity* (hereinafter "ALLEA (2017)").

⁶ Toolkits such as those available at www.rri-tools.eu or <https://irafpa.org/> (accessed August 2020) can help in the implementation of the basic principles.

⁷ Based on ALLEA (2017), "2.1 Research environment".

⁸ See 6.4.9 Data exchange

⁹ Based on ALLEA (2017): 2.6 Collaborative working.

- At the beginning of their collaboration, partners should agree (ideally in writing) on the rules and regulations on scientific integrity that will apply, including how to deal with possible cases of misconduct, how to protect the intellectual property of the collaborators, and how to handle conflicts.
- Different partners may follow different codes and/or procedures. In such cases, this Code may be used as a reference. The implementation of parallel procedures should be avoided whenever possible; however, multiple sanctions of the same act of misconduct may be appropriate due to individual constellations and responsibilities.

4.3 Publication and dissemination¹⁰

- All partners in a research collaboration are normally informed and consulted in advance about all the possible publication formats for the research findings (incl. social networks and non-traditional publication formats) as well as the procedures for submission and revision. These include, in particular, the procedure for dealing with preprints.
- Scientists, institutions, and funding organisations are responsible for ensuring that all contracts or agreements contain appropriate and proportionate intellectual property clauses and other rights to the research work. Scientists will observe the guidelines issued by institutions and funding organisations.
- Unless otherwise agreed, scientists should commit to making their work available to a wide audience as soon as possible in accordance with the Open Science principle.
- If research findings turn out to be unreliable or incorrect, authors or editors must publish corrections or withdraw their papers.
- Scientists should consider publishing negative research results (in an appropriate format)¹¹ if it contributes to an efficient use of resources or appears to be advisable for ethical reasons.

4.4 Authorship¹²

- An author is someone who has made a significant personal contribution to the planning, implementation, quality, and, where necessary, revision of a piece of scientific research.¹³ The question of materiality should be assessed on a case-by-case basis. What is considered “significant” could include hard work and diligence or an “act of insight” (e.g., a consequence of knowledge, experience, originality, etc.).¹⁴ The authorship of teaching and educational materials should also be recognised as a scientific achievement.

¹⁰ Based on ALLEA (2017): 2.7 Publication and dissemination.

¹¹ Negative results are results that do not support the hypothesis or do not allow the research objective to be achieved because no results are available or they cannot be interpreted. These are also important and, like positive outcomes, contribute to our knowledge of the research topic.

¹² Based on ALLEA (2017): 2.7 Publication and dissemination, and Swiss Academies of Arts and Sciences (2013): *Authorship of scientific publications*.

¹³ Based on ALLEA (2017): 2.7 Publication and dissemination, and Swiss Academies of Arts and Sciences (2013): *Authorship of scientific publications*.

¹⁴ The latter is usually rated more highly, even though it may have taken less time. See also Swiss Academies of Arts and Sciences (2013): *Authorship of scientific publications*, p.18.

¹⁵ Acknowledgements should ideally be brief and precise – for example, “Prof. X designed the project, Dr Y collected the raw data and created the graphics, Z carried out the experiments, and A was responsible for preparing and evaluating the survey”.

¹⁶ Research data refers to (digital) data that, depending on the context, are the subject of a research process or are produced during a research process (cf. Kindling, M. and Schirmbacher, P. (2013) “‘Die digitale Forschungswelt’ als Gegenstand der Forschung” (“The ‘digital research world’ as the subject of research”), Information: *Wissenschaft & Praxis* 64 (2–3), pp. 127–136; cf. <https://www.forschungsdaten.org/index.php/>).

¹⁷ FAIR = findable, accessible, interoperable, and reusable (cf. Wilkinson et al. (2016) “The FAIR Guiding Principles for scientific data management and stewardship”, *Scientific Data* 3, doi:10.1038/sdata.2016.18).

¹⁸ Notably for reasons of confidentiality, data and personal privacy, intellectual property rights, and security.

- Authorship does not derive merely from a person’s role. A purely financial contribution or position of superiority does not of itself entitle an individual to authorship.
- Scientific integrity requires transparency about the contributions that all authors have made to a project. Authorship, the order in which the authors are listed, and an acknowledgement of specific contributions made to a publication¹⁵ must be clarified prior to submission.
- When there is more than one author, the order in which the authors are listed should be guided by the value of their contributions and is subject to discipline-specific rules or practices on the role of the first and last author. If a different order is chosen, it must be identified by means of appropriate remarks.
- As a rule, all the authors are responsible for the entire content of a publication, unless partial authorship can clearly be ascribed.
- Authorship should be clarified by the parties involved as soon as possible and settled at the latest when the value of the expected contribution of each member of the team becomes clear. The rules should be explained transparently and implemented fairly during the project.
- If questions about authorship cause disagreement, institutions and funding organisations provide a procedure for conflict resolution.

4.5 Data management

- Research data¹⁶ must be stored appropriately and in compliance with the relevant regulations to ensure their reproducibility and/or verifiability (depending on the discipline), reliability, and accuracy. Institutions and funding organisations should provide or enable access to a storage infrastructure for these data.
- Institutions and funding organisations should communicate their data management requirements and comply with the FAIR principles¹⁷ of stewardship inspired by the concepts of Open Data and Open Science.
- Scientists should adhere to the FAIR principles when making their research data available, provided that there are no rights (such as copyright, data protection, or contractual rights) preventing publication.
- If research data or data sources cannot be disclosed or made accessible either immediately or after a certain period of time,¹⁸ it must still be possible – as long as there are no important reasons to the contrary – for research results to be verified. Persons and institutions entitled to receive research data or data sources are responsible for their safekeeping and/or, where necessary, their destruction.

4.6 Assessment and evaluation¹⁹

- Institutions and funding organisations should have regard for objectivity and impartiality when selecting reviewers.
- Scientists also undertake other roles and participate in professional reviews, audits, and expert evaluations in the scientific community.
- Scientists should review and evaluate submissions for publication, funding, appointments, promotions, or awards in a transparent and accountable manner. They should make a commitment to objectivity, impartiality, and confidentiality and to the disclosure of any conflicts of interest. They should also take these requirements into account if they are involved as a publisher.
- Scientists must respect the confidentiality and intellectual property of unpublished ideas, data, and interpretations.

4.7 Research process²⁰

- Researchers should design, undertake, analyse, document, and publish their research with care and with an awareness of their responsibility to society, the environment, and nature.
- Researchers should treat people, animals and research subjects with respect and care and in keeping with legal, ethical, and discipline-specific rules.
- Researchers are obliged to proactively recognise and consider possible harms and risks in connection with their research work and to take appropriate precautionary measures. This is especially true for dual use research of concern.²¹

4.8 Private funding²²

Science is not funded exclusively by public money. Private contributions may also help expand research and teaching, including providing the necessary infrastructure. The following principles should be borne in mind:

- The autonomy and independence of the institution and funding organisation must remain unaffected.
- The freedom to teach and to conduct research and the freedom to choose research methods and publications should be guaranteed.

¹⁹As per ALLEA (2017)

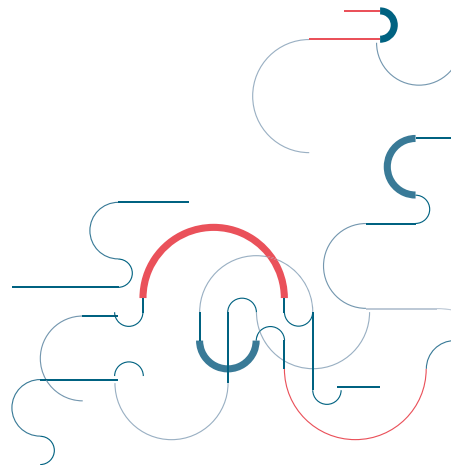
"2.8 Reviewing, evaluating and editing".

²⁰As per ALLEA (2017) "2.3 Research procedures".

²¹In view of its increased risk potential, the life sciences define dual use research of concern as follows: "Research that, based on current understanding, can be reasonably anticipated to provide knowledge, information, products, or technologies that could be directly misapplied to pose a significant threat with broad potential consequences to public health and safety, agricultural crops and other plants, animals, the environment, materials, or national security". Swiss Academies of Arts and Sciences (2017) *Misuse potential and biosecurity in life sciences research*, p.10.

²²As per ETH Zurich (2014) *ETH Zurich code of conduct on dealing with contributions*.

- A donation should be clearly documented in writing in a contract with the donors. Any requirements or conditions must be specified precisely and exert no influence whatsoever on the research results. The authority for personnel and procurement decisions remains with the institution or funding organisation receiving the grant.
- The origin of donations must be known, and any donation (although not necessarily the identity of the donor) must be disclosed in the context of the publication. The acceptance of donations must not lead to conflicts of interest.



5. Violations of scientific integrity

5.1. Legal classification

Violations of scientific integrity (hereinafter “**scientific misconduct**”) can violate a number of different standards: legal standards (such as data protection and personal rights, intellectual property rights, unfair competition rights, and the norms of civil and criminal law), the basic principles of scientific integrity described previously (→ Chapter 3 Basic principles of scientific integrity and Chapter 4 Implementation of the basic principles), and discipline-specific standards of good scientific practice.

There are, however, other ways in which research and teaching can endanger or destroy values, harm the public interest or human dignity, use resources unsustainably, or provide knowledge that represents a threat to humanity and the environment. Standards cannot eliminate these dangers. The responsibility of science extends beyond described cases of scientific misconduct. Scientific misconduct runs the whole gamut from negligence to wilful misconduct.²³ For example, both incitement and complicity²⁴ are also considered misconduct.

The violations described below relate to the basic principles of scientific integrity and their implementation (→ Chapter 3 Basic principles of scientific integrity and Chapter 4 Implementation of the basic principles).

5.2. Understanding the concept of violation

5.2.1 Preliminary observation

Scientific misconduct can take a variety of forms. The descriptions of scientific misconduct that follow are based on descriptions in other similar codes.²⁵ An act of misconduct may comprise several violations.

Other comparable behaviours, while not explicitly described here, may also qualify as scientific misconduct.

5.2.2 Fabrication

Fabrication is stating, recording, or otherwise representing non-existent data, principles, or results. It includes quoting incorrectly or misleadingly from works or alleged works by third parties.

²³A person is negligent if they act recklessly and incompetently and in doing so ignore or fail to consider the consequences of their actions. Where particular standards demand certain conduct, the degree of care that needs to be taken is largely determined by these regulations (Decisions of the Swiss Federal Supreme Court (BGE) 135 IV 56).

²⁴Swiss Academies of Arts and Sciences (2008) Integrity in scientific research: Principles and procedures.

²⁵Swiss Academies of Arts and Sciences (2008) Integrity in scientific research: Principles and procedures and ALLEA (2017) The European Code of Conduct for Research Integrity.

5.2.3 Falsification

Falsification is the unfair, intentional, or reckless manipulation of research materials, tools or procedures. This manipulation may include the dishonest alteration, emphasis, omission or deletion of data or results and their presentation. Deliberately misinterpreting research results also amounts to falsification.

5.2.4 Plagiarism

Plagiarism refers to situations in which a person's own work cannot be sufficiently distinguished from his or her previous work or the work of another person.

According to this Code, the following behaviours would be classed as plagiarism:

- using other people's work (including unpublished sources), ideas (including structure), or formulations without giving proper credit to the original source;
- using other people's work with slight adaptations or translations without acknowledging the original source;
- reusing substantial parts of one's own work from scientific publications and research proposals as well as from non-published sources without correct indication of the sources or indication of the participation of third parties in one's own proposals and work ("self-plagiarism");
- reusing co-authored publications without proper acknowledgement of the source.

5.2.5 Misconduct pertaining to authorship²⁶

²⁶Swiss Academies of Arts and Sciences (2013) *Authorship of scientific publications*.

²⁷See also Swiss Academies of Arts and Sciences (2013) *Authorship of scientific publications*, 3.4 f.

The following behaviours concerning the naming and sequencing of authors are examples of scientific misconduct:

- claiming authorship without having made a significant contribution to the work (including research proposals);
- failing to mention persons whose scientific work has made a significant contribution to the publication or disparagement of their contribution;
- giving a sequence of authorship that does not adequately reflect the extent of each person's contribution (discipline-specific).²⁷

5.2.6 Incorrect publication lists

The following behaviours related to incorrect information in publication lists are examples of scientific misconduct:

- providing information in publication lists that deviates from the actual published information or is misleading;
- giving false or misleading information about the publication status of one's own work.²⁸

5.2.7 Improper handling of data and research materials

The following behaviours related to the handling of data or materials are examples of scientific misconduct:

- omitting or withholding data and data sources;
- obtaining and processing personal data without obtaining informed consent;²⁹
- copying, passing on, or using data without authorisation;
- insufficient pseudonymisation/anonymisation of data;
- violating disclosure obligations (→ 4.5 Data management);
- storing data inadequately;
- violating the obligation to retain data (→ 4.5 Data management) or materials, such as disposing data and materials before the expiry of a mandatory retention period.

5.2.8 Misconduct in collaborative projects

The follow behaviours in connection with collaborative projects are examples of scientific misconduct:

- neglecting one's duty of care and supervision;
- abusing a management function to instigate, encourage, or cover up violations of scientific integrity;
- harming, delaying, obstructing, or denigrating the research of others within or outside one's own research group;
- obstructing collaboration by withholding research results;
- refusing to allow authorised persons to examine research data and results;
- breaching confidentiality and discretion obligations;
- displaying any form of harassment or discrimination, especially when based on cultural, socio-demographic, or other personal characteristics or professional backgrounds.

²⁸For example, stating "publication in print" when a manuscript has not yet been accepted.

²⁹Informed consent is the process through which a researcher obtains and maintains the permission of a person or a person's authorised representative to participate in a research study (source: University of Southern California, "Research Guides", <https://libguides.usc.edu/writingguide/informed-consent>, accessed 4 June 2020).

5.2.9 Misconduct in connection with expert reports and peer reviews

The following behaviours in connection with expert reports and peer reviews are examples of scientific misconduct:

- writing scientific opinions without clarifying whether relevant knowledge of a narrow subject area is existent;
- writing scientific opinions and peer reviews that are not well informed, factual, or appropriate;
- failing to disclose conflicts of interest or other potential sources of bias;
- unauthorised use or disclosure of confidential information obtained from material being reviewed;
- misappropriating ideas from material being reviewed.

5.2.10 Misconduct in research misconduct proceedings

The following are examples of misconduct in connection with research misconduct proceedings:

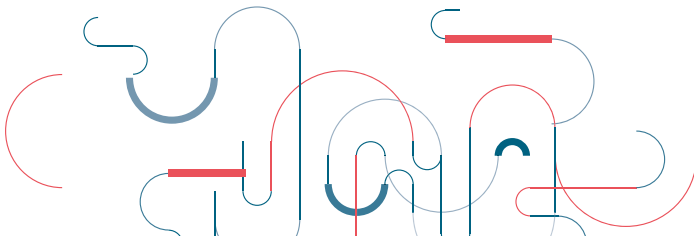
- alleging a violation of scientific integrity without reasonable cause;
- concealing or minimising violations of scientific integrity committed by third parties;
- discriminating against persons who have reported scientific misconduct or against whom misconduct is suspected (presumption of innocence).

5.2.11 Other forms of scientific misconduct

Other forms of scientific misconduct include:

- failing to adequately consider the expert opinions and theories that make up the current body of knowledge and making incorrect or disparaging statements about divergent opinions and theories;
- organising and conducting research without obtaining the necessary permits or agreements;
- providing false personal details about an individual and/or his or her curriculum vitae in the context of research and science and when obtaining third-party funding;
- unjustified and/or selective citation or self-citation;
- establishing or supporting journals or platforms lacking proper quality standards;

- failing to consider and accept possible harm and risks in connection with research work (→ 4.7 Research process);
- enabling funders and sponsors to influence the independence of the research methodology or the reporting of research findings.



6. Review body and review policies

6.1 Preliminary observation

This chapter deals with policies and procedures for reviewing allegations of scientific misconduct.

The information about review bodies and procedures provided in 6.3 Review body are recommendations. The specific design of a review body and its procedures is the responsibility of the institution and funding organisation concerned. Responsibility for the work of these bodies may be shared by several institutions or funding organisations.

As explained in Chapter 5.1 Legal classification, scientific misconduct may violate certain statutory provisions as well as this Code and its concretisations. These violations will, if necessary, be investigated and punished by the courts or other competent authorities. Whenever possible, legal proceedings should be coordinated with proceedings for scientific misconduct (→ [Appendix, I and II](#)).

It is also recommended that institutions and funding organisations establish an integrity committee to promote scientific integrity. This committee should not be directly involved with the procedures or with the bodies involved in dealing with specific cases. It could, for example, compile and update regulations on scientific integrity, critically examine their implementation, and create opportunities for strengthening the culture of scientific integrity (training, exchange forums, etc.).

Institutions or funding organisations must publish full details of the responsibilities of each member of the integrity committee along with members' contact addresses.

6.2 Competence

An alleged violation of scientific integrity should be investigated by the institution in which the violation has occurred and/or by the funding organisation affected by it.

6.3 Review body

The recommended review body is expected to undertake the following tasks:

- advice and arbitration
- investigation
- decision-making
- complaints (appeals)

The individual tasks should be carried out by different bodies or persons (hereinafter "bodies") within organisations. How they are designated is a matter for the institutions and funding organisations concerned. Advice and arbitration are not considered to be a formal procedural step. They can, however, be a precursor to a review procedure.

6.3.1 Advice and arbitration

Each institution or funding organisation should establish an advisory and arbitration body to deal with issues and disputes concerning scientific integrity.

The following principles apply when establishing such a body:

- The advisory and arbitration body should be independent and be appointed for an appropriate term of office.
- Advice and arbitration may be provided by persons who are part of a pool. As far as possible, diversity (including discipline, career level, and gender) should be sought in its composition.
- The advisory and arbitration body is obliged to maintain confidentiality. Reports on third parties should only be forwarded after consultation with the person seeking advice.
- If suspicions are raised that the person seeking advice may have committed scientific misconduct, he or she should be made aware of this.
- If the nature of the suspected misconduct is such that other legislation could apply (e.g., criminal offences → **Appendix**), the person seeking advice must be informed of this.
- The advisory and arbitration body may deal with minor cases by making appropriate recommendations or arranging appropriate measures.
- If the persons involved are unable to reach an agreement, they can request that the investigating body opens formal proceedings.

6.3.2 Investigation

Each institution or funding organisation should appoint an investigating body to look into suspected scientific misconduct. This body may be appointed on a case-by-case basis.

The following principles apply when appointing such a body:

- Experts from the discipline involved may be recruited to provide technical support.
- The investigating body will make its initial evaluation and take steps to secure evidence based on the applicable procedural law.
- If an allegation of scientific misconduct is found to have substance, the investigating body will open proceedings and inform the accused person.
- The investigating body allows the accused person to comment on the allegations and findings of the investigation, to submit evidence, and to request that further investigations are carried out into the matter.
- The investigating body should decide within a reasonable period of time whether scientific misconduct has occurred and make a recommendation to the decision-making body on the type and extent of sanctions to be taken.
- If the investigating body is unable to establish misconduct, it will discontinue the proceedings and inform the accused person and the decision-making body.
- The accused person may request that anyone with knowledge of the accusation is informed in an appropriate manner of the outcome of the investigation.

6.3.3 Decision

Each institution or funding organisation should establish a body responsible for making decisions in cases of scientific misconduct. Members of this body will normally be recruited from the highest management level of the institution or funding organisation. When this is not the case, the senior management of the institution or funding organisation should be informed of any decisions.

The following principles apply when establishing this body:

- The decision-making body determines any necessary sanctions. It ensures that sanctions are appropriate and proportionate and it respects the principle of equality of treatment.
- The sanctioning of misconduct is governed by the law applicable to the institution or funding organisation.
- The decision-making body should notify the accused person of its decision in writing. Decisions should contain guidance on how to appeal (details of the appeals process).

6.3.4 Appeals

An appeal may be lodged against a decision made by the decision-making body. Responsibility for hearing the appeal is determined by the applicable procedural law.

6.4 Procedural principles

The form of procedure adopted by institutions or funding organisations is determined by the governing law (federal law or cantonal administrative law). The following minimum standards apply to the procedure.

6.4.1 Initiation of the procedure

Institutions and funding organisations should clarify suspected cases of alleged violations of scientific integrity, if possible, within three months of their becoming known and initiate further steps if necessary.

6.4.2 Hearing

The accused person is heard by the investigating body in an appropriate manner. He or she has the right to refuse to testify.

6.4.3 Legal assistance

The accused person may consult a legal adviser for the proceedings.

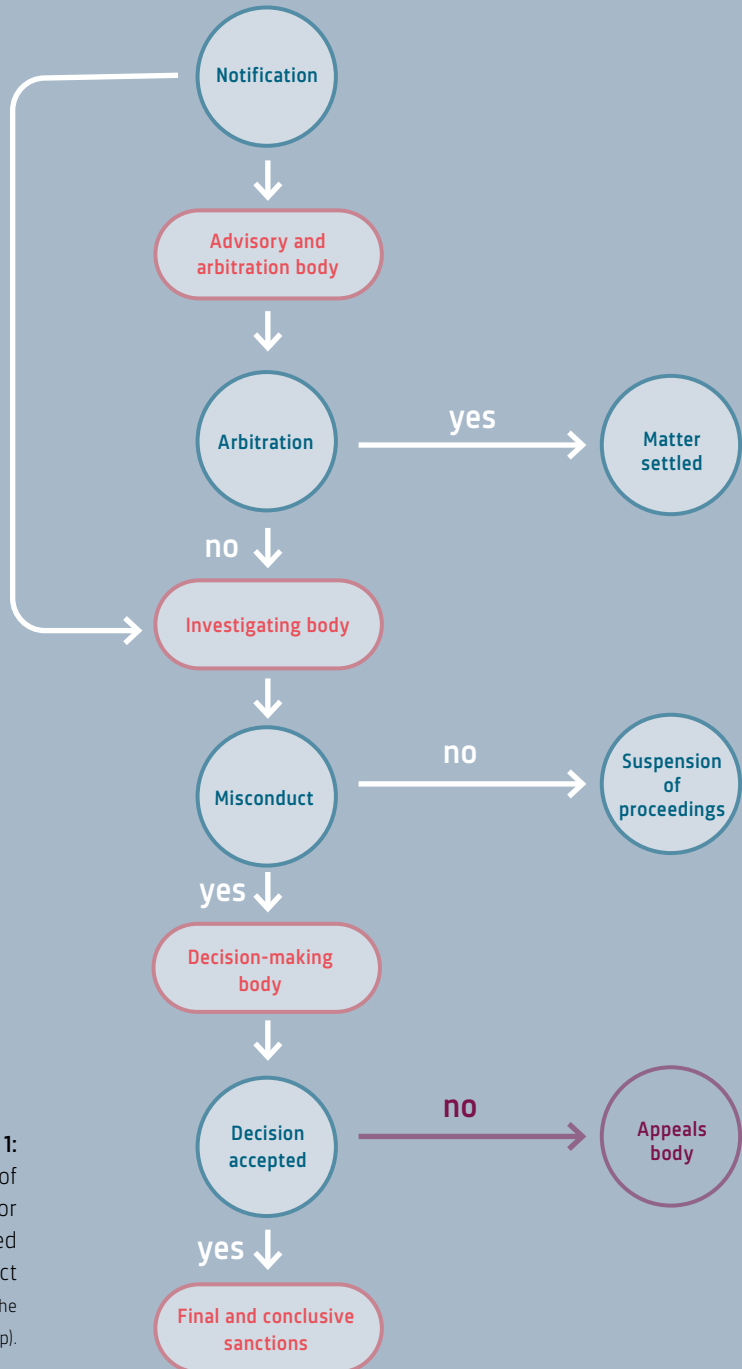


Figure 1:
Representation of
the procedure for
dealing with suspected
misconduct
(figure made by the
Code's working group).

6.4.4 Documentation and access to files

Each procedural step should be documented. All files should be filed in a case-related dossier and kept at the institution or funding organisation concerned.

The accused person has the right to inspect the dossier in accordance with the applicable procedural rules.

6.4.5 Confidentiality

All parties involved in the procedure on behalf of the institution or funding organisation are obliged to maintain confidentiality. In particular, they must treat all information about pending proceedings confidentially. The right to provide information after the procedure has been completed is reserved (→ 6.4.8 Information and communication).

The person who made the allegation also has the right to confidentiality. There may, however, be circumstances during the investigation where confidentiality cannot be maintained. In this event, the institution or funding organisation will provide protection against possible discrimination or reprisals, especially if the person who made the original allegation is in a relationship of dependency with the accused person.

6.4.6 Bias and avoiding conflicts of interest

No person who is biased or may reasonably be suspected of bias³⁰ may participate in an investigating or decision-making body. More specifically, if any member of the investigating or decision-making body is in a relationship of dependency with the accused or complainant, this must be addressed.

At the beginning of each phase of the proceedings, the accused should be notified of the composition of the review body so that he or she can notify the review body of grounds for recusal of any member.

6.4.7 Anonymous reports

Anonymous reports should only be followed up if the alleged misconduct is sufficiently well substantiated to allow for investigation by the investigating body.

³⁰ Bias is deemed to exist in the event of kinship, close friendship or enmity, friendship or former friendship, current or former co-authorship, or a current or former competitive relationship.

6.4.8 Information and communication

Information about scientific integrity and communication are of considerable importance when dealing with violations of scientific integrity. This is because the core message being communicated – that an uncompromising approach to scientific integrity is essential to science – can have a preventative effect.

- Institutions and funding organisations should actively and comprehensively tackle the subject of scientific integrity in their public communications. In particular, they should provide information about their policies and rules on the issue.
- Institutions and funding organisations should also provide information on suspected cases and ongoing investigations in compliance with the principle of presumption of innocence, the personal rights of the persons affected, and data privacy.

As a matter of principle, institutions and funding organisations should provide information in anonymised form on proceedings and sanctions that have been legally concluded. They should engage in active communication in a spirit of transparency and prevention.

6.4.9 Data exchange

Investigations and proceedings on alleged misconduct and sanctions frequently affect not just those who are directly involved, namely the person subject to suspicion or sanction and the investigating or sanctioning institution or funding organisation. For example, investigations may require information to be obtained from third parties, or the institutions involved may have rights to information about their employees.

³¹ Institutions and funding organisations subject to Swiss federal law, such as the SNSF, Innosuisse, and the ETH Domain, have a lawful basis for providing information: Art.12 para. 2 of the Federal Act on the Promotion of Research and Innovation (RIPA) and Art. 20b of the Federal Act on the Federal Institutes of Technology (ETH Act). Most cantonal institutions do not have this lawful basis.

Institutions or funding organisations acknowledge their commitment to cooperation in the area of scientific integrity. By exchanging information, they contribute to the prevention, clarification, and sanctioning of scientific misconduct. Where permitted by law, they can provide information in specific cases and also take steps to obtain this information themselves.³¹ They actively support the following:

- the transparent regulation of rights and obligations related to the cross-institutional exchange of information in matters of scientific integrity and the enablement of institutions to cooperate as part of an integrated scientific community;

- the requirement that scientists issue a self-declaration before taking up a new task (e.g., a new job or a seat on a scientific committee) and while carrying out their work.

When exchanging information about sanctions, the institutions and funding organisations providing the information should bear the principle of proportionality in mind; that is, they should evaluate whether the seriousness of the violation or sanction justifies providing the information. The circumstances of an individual case may justify institutions or funding organisations choosing not to provide information and opting for awareness-raising or coaching instead. In the case of early-career researchers, a lack of experience may be taken into account. Self-declaration obligations should apply for a period of five years.

6.4.10 Limitation

In contrast to criminal law, previous regulations and codes on scientific integrity have not been explicit about time limitations. This means that people who may have committed misconduct can still face proceedings many years later, regardless of the seriousness of the allegation. In other words, there is a lack of legal certainty. By the same token, past misconduct can still have repercussions years later. Under certain circumstances, there may be some justification for the sanctioning of misconduct even after a long period of time has elapsed.

The question of whether misconduct can be established at all depends on the availability of evidence. Depending on the discipline and the allegation, this can be the deciding factor in whether an allegation is investigated. This poses a risk of unequal treatment when compared to situations where evidence is more easily obtained and should be taken into account when deciding whether to proceed.

Under these circumstances, it is recommended that institutions and funding organisations apply the following benchmarks in order to set a time limit for investigating allegations of misconduct:

- What is the severity of the alleged misconduct? Factors to consider when judging severity can include, for example, intent, academic maturity, number of violations, harm to third parties, and the time period involved.

- Does the misconduct affect the present and, if so, how (e.g., improperly assumed titles or positions)?
- Would the conduct have been considered to be misconduct at the time it is alleged to have occurred?

6.5 Sanctions

The aim of this Code is not to prescribe sanctions for institutions and funding organisations to impose. This is the responsibility of institutions and funding organisations under the applicable laws and regulations. However, it is recommended that all institutions and funding organisations should be as consistent as possible relative to one another in the sanctions they impose for similar violations. Institutions and funding organisations should make use of national fora to establish common, consistent sanctioning practices.

Depending on the situation, sanctions may include the following:

- reprimand
- warning
- suspension
- transfer
- dismissal
- revocation, curtailment, or reimbursement of research resources
- point deduction or lowest grade for an examination
- exclusion from studies (temporary or permanent)
- withdrawal of an academic title or licence to teach

If appropriate, a sanction may be combined with further specific measures. These could be, for example:

- coaching
- training
- professional development
- obligation to correct research findings or teaching documentation
- prohibition on supervising employees, students, and doctoral students

The principles of legality, proportionality, and equal treatment must be observed when imposing sanctions. Sanctions should take into account the singularities of different academic career levels and the importance of each individual case. Account should be taken not only of the seriousness of the violation but also the harm it has caused.

APPENDIX

I. Criminal and ancillary criminal conduct and violations of public and private law

The events and legislation in the following list may also involve scientific integrity (an exemplificative, non-exhaustive list):

- Fraud (*Art. 146 SCC*³²)
- Offences of defamation (*Art. 173 ff. SCC*)
- Sexual harassment (in the workplace) (*Art. 4 Gender Equality Act*³³ or *Art. 198 SCC*)
- False certification/falsification of documents (*Art. 251 ff. SCC*)
- Performance and tax fraud, falsification of documents, fraudulently obtaining a certification, suppression of documents and preferential treatment (*Art. 37 SubA*³⁴ together with *Art. 14-18 ACLA*³⁵)
- Obtaining services by fraud (*Art. 38 SubA*)
- Carrying out research without the necessary authorisations (*Art. 62 ff. HRA*³⁶)
- Violation of data protection regulations (*Art. 33 FADP*³⁷)
- Breach of obligations to provide information, to register, and to cooperate and breach of professional confidentiality (*Art. 34 and 35 FADP*)
- Non-disclosure of conflicts of interest in review proceedings (*Art. 10 APA*³⁸ by persons making or preparing a decision)
- Violation of public law rules in the RIPA and funding regulations of the SNSF and Innosuisse
- Violations against regulations on medicinal products and transplantation
- Violations of environmental protection, genetic engineering or animal welfare regulations
- Unfair competition in trade and commerce
- Copyright and patent infringements
- Breach of contractual obligations – e.g., breach of a publishing contract or breach of a contractual agreement with project partners or sponsors
- Violations of personal privacy rights, such as reading other people's emails, recording conversations without consent, or monitoring workspaces

³² Swiss Criminal Code (SCC) of 21 December 1937 (Classified Compilation of Federal Legislation (SR), 311.00).

³³ Federal Act of 24 March 1995 on Equality between Men and Women (Gender Equality Act, SR 151.1).

³⁴ Federal Act of 5 October 1990 on Financial Aid and Compensation (Subsidies Act, SR 616.1).

³⁵ Federal Act of 22 March 1974 on Administrative Criminal Law (SR 313.0).

³⁶ Federal Act of 30 September 2011 on Research Involving Human Beings (Human Research Act, SR 810.30).

³⁷ Federal Act of 19 June 1992 on Data Protection (SR 235.1).

³⁸ Federal Act of 20 December 1968 on Administrative Procedure (SR 172.021).

- Conduct applicable to personnel law:
 - Bullying or sexual harassment in the workplace
 - Non-disclosure of conflicts of interest
 - Failure to comply with reporting obligations to an employer
 - Incorrect recording of working hours

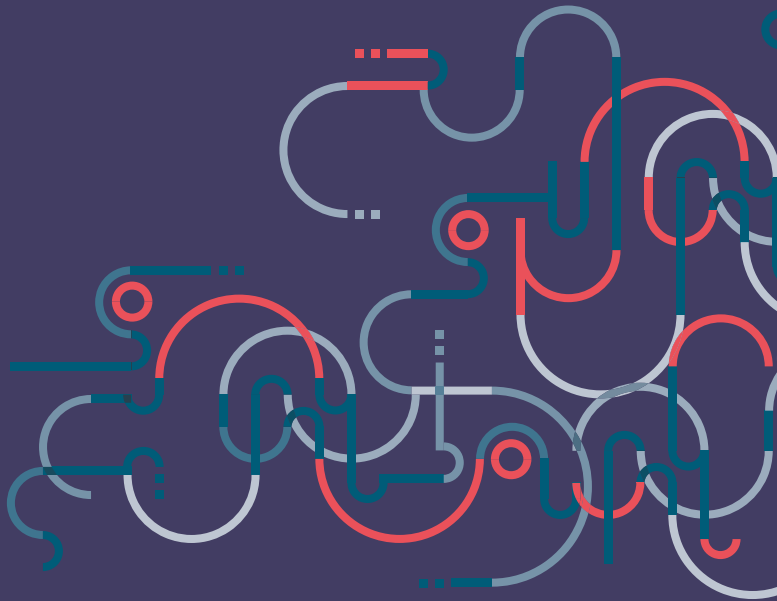
II. Responsibilities

Violations of scientific integrity should be investigated by the competent bodies of the institutions and funding organisations concerned. The responsibility for investigating other violations can be simplified and differentiated as follows:

- (ancillary) criminal offences by the criminal prosecution authorities
- violations of public law by the authority concerned
- disputes involving third parties, such as co-authorship, project partnership, and publishers, by civil settlement proceedings
- misconduct within an employment relationship in the context of disciplinary proceedings of the employer
- finally, other organisations such as professional associations can determine and sanction violations of their own regulations



Highest standard for eco-efficiency.
Cradle to Cradle certified™ printing products
Manufactured by Vögelé AG.
Except bindings.






House of Academies
Laupenstrasse 7
P.O. Box
3001 Bern
Tel. 031 306 92 20
info@swiss-academies.ch

 @academies_ch

 Swiss Academies of Arts and Sciences

 swiss_academies

swiss-academies.ch

