SCIENCE ETHICS COMMITTEE

CODE OF ETHICS FOR RESEARCH WORKERS

Second edition

The Code of Ethics for Research Workers was prepared by the Science Ethics Committee and enacted by the General Assembly of the Polish Academy of Sciences on 1 December 2016

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1. PREAMBLE

1. The Code of Ethics for Research Workers is based on basic ethical principles, which are thought to be natural and universally applicable within our cultural circle. Recognition of these principles was adopted as a foundation, without the need to analyse the source of this conviction. The respect for human dignity and life in all its manifestations, truthfulness, honesty, the obligation to respect commitments, the right to freedom of belief and ownership are the fundamental principles of ethics. A person's ethical guardian is a conscience, while the assessments of facts and external actions that violate the good of others is subject to the judgement of credible bodies.
2. Ethical values, standards of research integrity and good practices in research highlight the ethical and social responsibility of scientists. Scientists must be aware of their particular responsibility to society and to the whole of humanity.
3. The Code of Ethics for Research Workers presents principles introduced by the scientific community in the belief that the primary duty of a researcher is to adhere to the established principles and honesty in scientific work. This Code of Ethics defines criteria for good practices and ethical violations in research work and establishes the procedures, which should be used in casescientific dishonesty is uncovered. Changing external and internal circumstances, such as the massification of higher education, increasing number of researchers, the need to apply for research funding, parametric assessment of researchers and scientific institutions and conflicts of interest associated with the commercialisation of research results, all these prompt us to pay special attention to the intensifying in recent years phenomena such as courtesy reviews, plagiarism, multiple-job holding (moonlighting), unjustified citing of works, using institutional resources for one's own personal benefit.
4. Perpetuating high standardsin science is of crucial importance not only tomaintain the inner coherence of science but alsofor its credibility and social authority. In order to sustain public trust in the scientific enterprise, scientific community must show greater concern for the authority entrusted to them and should not give in to any pressure.

2. UNIVERSAL PRINCIPLES AND ETHICAL VALUES IN RESEARCH WORK

Basic, universal principles and ethical values on which the integrity and credibility of science is based relate to the representatives of all scientific disciplines, without exception. Researchers, universities, scientific institutions, funding agencies and all other bodies that help scientific community to connect openly with each other and the outside worldshould adhere to these principles.

These principles include:

1. conscientiousness in: presenting goals and intentions of planed or performed research, presentingresearch methods and procedures as well as interpretations of obtained results, providing information on possible threats, anticipated benefits and practical applications;
2. credibility in conducting research, criticism towards one's own results, meticulousness, attention to detail and great care in presenting research results;
3. not using scientific authority when speaking on topics from outside one's area of competence;
4. objectivity: interpretations and conclusions must be founded on facts, verifiable reasoning, and data capable of proof and secondary review;
5. independence from commissioning or interested parties (free from any external influence), from political, ideological and economic pressure groups;
6. openness in: discussions with other scientists on their own research, which is one of the key conditions for progress in science, contributing to public knowledge through publication of the findings, honest communication to the general public;
7. transparency in the handling of research data that guarantees data and materials availability after publication;
8. duty of care for the participants and the subjects of research; research on living creatures should only be conducted where necessary (with the consent of the appropriate bioethics commissions) and should always rest on the principles of respect for human dignity and animal rights;
9. fairness and reliability in:evaluatingworks of other researchers,givingcredit where credit is due by providing correct citation and reference information;
10. courage to oppose views that are contrary to scientific knowledge and practices incompatible with the principles of scientific reliability;
11. concern for future science generations manifested through giving young researchers opportunity to develop their scientific skills and instilling in them binding standards and ethical norms.

3. GOOD RESEARCH PRACTICES

The term “good research practice” covers detailed and universally understood rules of appropriate conduct that are possible to introduce in individual research units. These rules refer to the way a research work is carried out, presented and evaluated, and are created to ensure that ethical requirements are met. Each researcher from the very beginning of his or her career should be aware of the rules and the consequences of violating them.

The responsibility for promoting and adhering togood research practice is shared by the whole research community, including participants of the research process, scientific institutions, and governmental and non-governmental organisations operating within the field of science.

The following categories of good research practices are distinguished:

1. Research data management
2. Research procedures
3. Authorship and publication
4. Peer review and assessment
5. Training new scientists
6. Public relations
7. Avoiding conflict of interest

Thesepractices may be subject to cultural differences; definitions, traditions, legislative regulations and institutional provisions may vary significantly over scientific disciplines. Therefore, each research unit should, if necessary, propose amendments to these practices or create its own set of good research practices to comply with its legal requirements and traditions. This also applies to the institutions that sponsor research, as well as scientific publications. Lack of internal rules of conduct undermines the credibility of the institution.

3.1. RESEARCH DATA MANAGEMENT PRACTICES

All original research data, that is primary data on which publications have been or will be based, in some cases samples or materials derived from the ongoing research, should be well-documented and safely archived to keep data from being manipulated, and to make data accessible for future reference for a period of time adequate for a given discipline of science.

3.2. RESEARCH PROCEDURES

1. All research studies should be preceded by the risk and consequences analysis to foresee how research results may affect society and the environment.

2. When applying for research funding researchers should formulate realistic goals and make every effort to accomplish them.
3. Special care should be taken in the case of research studies carried out on human subjects. Human dignity and an individual's autonomy must be respected.
4. All research subjects, be they living organisms, the environment or cultural objects, should be handled with respect and care.
5. The health, safety or welfare of a community or of collaborators should not be compromised.
6. Researchers should be aware of the need for a balanced management of research funding.
7. Research sponsors should be alerted to the ethical and legal obligations that bind researchers, and to possible restrictions this may imply.
8. In special, justified cases, confidentiality of data or research findings should be respected by the researcher, when it is legitimately required by the client or employer.

3.3. AUTHORSHIP AND PUBLICATION PRACTICES

1. Researcher should publish the results and interpretations of his or her research in an honest, transparent and accurate manner, so that other researchers could elaborate on the findings or replicatethem.
2. Authorship must be based solely on substantial intellectual contribution to the research. This includes:significant contribution in initiating scientific idea, formulating conceptions, designing research, significant share in data acquisition, in the analysis and interpretations of data and in drafting the article or revising it critically for intellectual content.
3. Acquisition of funding, provision of technical assistance or materials, the collection of data, general supervision of the research group, by themselves, do not justify authorship. All authors are fully responsible for the content of the publication, unless it is specified they are responsible only for a specific part of the study within their speciality.When listing authors and their affiliations, it is appropriate to mention what was the nature of their contribution to the research.
4. Sequence of authors should be consistent with the existing customs in a given scientific discipline and agreed by all, ideally at the start of the project.
5. Intellectual contributions of others that have influenced the reported research should be appropriately acknowledged.
6. Financial or other types of support for research should be properly mentioned and acknowledged.
7. Publication of the same (or substantial parts of the same) work in different journals is acceptable only with the consent of the editors of the journals and where proper reference is made to the first publication. In the author's CV such related articles must be mentioned as one item.

8. In communication with the general public and in popular media the same standards of honesty and accuracy should be maintained. Attempts to exaggerate the importance and practical applicability of the findings constitute a reprehensible practice.

3.4. PEER REVIEW AND ASSASSEMENT PRACTICES

1. Reviewers should not agree to peer review any research, scientific achievements or research concepts of other scientists, when the research falls outside their areas of expertise.
2. Reviewers involved in the review process with regard to research projects, publications, scientific achievements, applications for faculty positions in scientific institutions and other forms of recognition, should withdraw from involvement in the review process, if there is any conflict of interests between them and evaluated individuals.
3. Reviewers should provide accurate, objective, substantiated and justifiable assessments.
4. Reviewers should maintain confidentiality until the manuscript is published.
5. Reviewers and editors shall not make any use of the data or ideas presented in submitted manuscripts without the author's permission.

3.5. TRAINING NEW SCIENTISTS

1. The Faculty Council or Scientific Board of an academic institution authorised to conduct certain types of studiesmust be entrusted special care of undergraduate, graduate, postgraduate and doctoral students. These Bodies should determine the eligibility of staff to supervise research degree students and guarantee reliable supervision by exercising control over the number of students per supervisor.
2. The supervisor should perform his or her duties reliably, in particular do his or her best to ensure that research conducted under his or her supervision meets all the requirements of scientific work and that dissertation is free fromunacknowledged borrowings from other authors.
3. The supervisor should ensure that his or her research student is familiar with ethical values in conducting research, and above all, should be a role model for his or her student.

3.6. PUBLIC RELATIONS PRACTICES

1. Public speeches should be marked by care for scientific credibility. The same standards of honesty and accuracy that apply to publishing research results should be maintained in public speeches.
2. Scientist, as a citizen whocannot remain indifferent to public affairs, should speak publicly. He or she should, however, adhere to the principle that his or her scientific authority may only be used in pronouncements, which are within his or her scientific competence.

3.7. AVOIDING CONFLICT OF INTEREST

Conflict of interest may occur when:

1. there are non-professional relationships between the evaluator and the evaluated, be that individual or institution;
2. there is a connection between a member of the fund granting authority and a person or research unit to which these funds are granted;
3. the purchase of equipment, materials, services, necessary to conduct research, takes place in companies with which researcher, or person close to him or her, has business, financial or ownership ties;
4. equipment of research unit or work of students, doctoral students or co-workers is used for the benefit of the company with which researcher, or person close to him or her, has business, financial or ownership ties;
5. employee of a scientific institution is involved in the work of a company, or holds shares of the company that operates within the same field as the employee's institution, or misuses his institution's equipment and know-how.

In the event that such conflicts of interest occur the employee is required to notify his or her supervisor.

4. UNRELIABILITY IN SCIENTIFIC RESEARCH

4.1. GROSS VIOLATIONS OF ETHICS IN SCIENCE

Fabrication and falsification of research results as well as plagiarism are the most seriousforms of research misconduct that damage the ethos of science and violate fundamental principles of scientific integrity.

1. **Fabrication** involves making up results and recording them as if they were real.
2. **Falsification** involves changing or omitting unwelcome data, so that research results are not accurately represented.
3. **Plagiarism**is the appropriation of another person's ideas, research results or words without giving appropriate credit;this action constitute a violation of intellectual property rights.

These violations may occur at different stages of work i.e.:when applying for funding, proposing, performing and reviewing research, as well aswhen presenting research findings during scientific conferences, or at the time of publication. They can arise in the reporting of other researcher's results, in the reporting of expert opinion and in the public dissemination of science. Persons found to have committed these violations may be disqualified from research community. Therefore, disclosure must lead to the initiation of disciplinary proceedings.

Other examples of serious violations of principles include **misconduct in reviewing** research projects, doctoral and post-doctoral dissertations, misconduct in applications for promotions to professorship and all types of applications for faculty positions in scientific institutions, as well as refusing to express opinion when the reviewer's evaluation should be negative.

Unjustified quoting of works of others or one's own as well as deliberate omitting of citations is an activity reprehensible and unworthy of a scientist.

4.2. OTHER TYPES OF RESEARCH MISCONDUCT

Apart from serious violations of research integrity there are many other forms of academic misconduct in research. List of inappropriate scientific behaviour cannot be closed. However, we should mention the following:

- using work of others, be that students, doctoral students or co-workers, without adequate financial compensation or sufficient acknowledgement of contributors;

- granting co-authorship to an individual who did not contribute intellectually to the publication;
- consent tocarry out research in an ostensible manner that has nothing in common with scientific integrity.

All forms of oppression and discrimination against students and co-workers, misuse of research funds and concealment of conflicts of interest are reprehensible. Nepotism in employmentshould also be included to undesirable practices.

4.3. GENERAL GUIDELINES FOR UNCOVERING SCIENTIFIC UNRELIABILITY

The primary responsibility for handling cases of misconduct is in the hands of the employers of scientists doing research, that is universities, scientific institutes, public and private research centres.

A breach of ethics committed by students should be immediately corrected and reprimanded by teachers and mentors.

All allegations of misconduct in performing research must be properly explained, if the allegations are confirmed – factsand circumstances should be fully examined and disciplinary and corrective actions should be taken in accordance with applicable laws. Care must be taken to ensure that individuals participating in the investigation haveconsiderable experience in the filed in which the misconduct was observed.

Responses should depend on the seriousness of the research misconduct, on the level of intent, on the consequences of the behaviour, and on other aggravating or mitigating circumstances.

Improper dealing with infringements, such as failure to report detected misconduct, attempts to cover it up, reprisals on whistle-blowers, and violations of due process should also be classified as serious violations of fundamental principles of research ethics.

5. APPENDICES

Appendix 1. Guidelines for dealing with breach of the principles of reliability in science

1. Procedure for reporting allegations of research misconduct

Person, who has uncovered misconduct in research or has reasonable suspicion that it has been committed, is responsible for reporting research misconduct to the manager of the institution in which the studies are conducted. If misconduct is observed at the university it should be reported to Vice-Chancellor, in case of research institute or other scientific unit it should be Director, or proper disciplinary officer. If conflict of interest arises at the manager level misconduct should be notified to higher authority (i.e. Supervisory Body).The notificationshould include the nature of the allegation, detailed justification, signature and contact detailsof a whistle-blower. The identity of the person reporting misbehaviour (whistle-blower) is confidential until disciplinary proceedings are initiated.

If the person notifying research misconduct considers this to be more appropriate he or she canreport the allegations to the Chairman of the Science Ethics Committee who, if necessary, may ask for further explanations. In the circumstances when the allegations appear to be well-founded, the Chairman hands over the case to the manager of the scientific unit, in which the suspected researcher is employed, to initiate disciplinary action.

In special cases, the Science Ethics Committee may, on its own initiative, refer the cases of scientific misconduct committed by the employees of the PAS research institutes and scientific units to the competent authorities of these institutions with recommendation to launch an investigation. The results of this investigation shall be forwarded, without delay, to the Science Ethics Committee.

2. Investigation procedures

The Disciplinary Spokesperson is responsible for carrying out the investigation, the purpose of which is to determine whether there are grounds to justify the opening of disciplinary proceedings.If the information provided to Disciplinary Spokesperson concerns gross violation of ethicsin science (point 4.1. of this Code), Disciplinary Spokesperson is obliged to open an *ex officio* investigation. In other cases, the investigation is initiated upon request of the authority appointing Disciplinary Spokesperson, that is a university's Vice-Chancellor or Scientific Board of research

institute or PAS institute, as well as on request of Disciplinary Spokesperson if he or she considers this to be appropriate.

It is extremely crucial to provide the Disciplinary Spokesperson with appropriate conditions to operate.The investigation should be carried out in a thorough, meticulous and an objectivemanner, in accordance with the procedures applicable in a given institution and with due regard for defendant's right of defence. Individuals participating in the investigation should disclose any circumstances likely to give rise to actual or potential conflicts of interest. Detailed records will be maintained on all aspects of the procedure. Person accused of research misconduct shall be immediately informed of the opening of the investigation. Accused party shall be given an opportunity to respond to allegations and provide explanations, and shallbe able to seek legal advice.

To ensure the highest standards of process integrity a strict confidentiality in ethics investigation must be maintained, number of people involved in the procedure should be limited and appropriate recordkeeping should be observed.Such confidentiality should be maintained provided this does not compromise the investigation of the allegation,health and safety, or wealth of its participants. The necessary information may be disclosed to third parties only when the parties agree to hold the information in confidence, unless they are already obliged to do so by virtue of their function. The investigation should end with a confidential report containing findings and recommendations for further proceedings.A copy of this report will be provided to the person notifying misconduct and to the accused.

If a manager of a scientific unit, on the basis of the report, finds the allegation of research misconduct to be unfounded (without substance), although it was made in good faith, the case shall be closed and the parties involved in the investigation shall be informed. The accused cleared of misconduct charges should have the right to restore his or her reputation by making the outcomes of the investigation public. If a manager of a scientific unitdetermines that there was an absence of good faith he or she will take disciplinary action against the person who failed to act in good faith.

If the investigation was conducted on the initiative of the Science Ethics Committee, the information on the outcome of this investigation should be submitted to the Committee without undue delay (pursuant to Article 39 paragraph 2 of the Act of 30 April 2010 on the Polish Academy of Sciences).

3. Disciplinary procedures

The purpose of disciplinary action is to determine whether the alleged research misconduct took place and to issue decisionrelevant to the findings. The proceedings shall be conducted, at the place of employment of the accused, in accordance with the Act of 30 April 2010 on the Polish Academy of Sciences, Act of 27 July 2005 on Higher Education, and Act of 30 April 2010 on Research Institutes. These regulations stipulate in

detail the manner of conducting proceedings,the content of conclusions, types of disciplinary action, appeal procedure against a first instance decision (disciplinary committee), possibilities of reopening disciplinary proceedings, and legal remedies against disciplinary decisions.

Care must be taken to ensure that the members of adjudication panels, throughout the course of the proceedings,do not have any relations with the accused person in this matter, nor with the person notifying the misconduct, nor are exposed to other conflict of interest. At the initiation of the proceedings, the manager of the institution must immediately notify, on a strictly confidential basis, the managers of funding agencies that proceedings on the sponsored research is being initiated. Legally binding decisions of disciplinary committees on research misconduct are taken into account when granting public funds toresearch. A scientific unit that fails to inform the managers of funding agencies about the final decisions of the disciplinary proceedings, conceals the fact that proceedings took place, as well as ignoresexisting irregularities within the scientific unit and refrains from taking disciplinary and corrective actions to deal properly with research misconduct, cannot be granted public funds for research until it implements appropriate corrective actions.

4. Opinions of the Science Ethics Committee

All provisions mentioned above provide for the possibility to refer to the Science Ethics Committee to issue an opinion where disciplinary committees have doubts regarding classification of scientific misconduct. Due to the special legal significance of such opinion, disciplinary committee should specify in detail what doubts it has. A request for the opinion of the Science Ethics Committee should be accompanied by case files.

Appendix 2. Practices in international research cooperation

Before international research projects start partners should agree which country should conduct the investigation if violations of ethics and research integrity occur and how, and even more importantly, what is to happen when the relevant national policies are at odds with each other. In such cases, it is suggested to refer to the recommendations of the Coordinating Committee of the OECD Global Science Forum and proposed by the Committee sample text for International Agreement, which should be embodied in the formal documents that establish the collaborative project.

Sample text of Agreement regarding scientific integrity in international research collaboration proposed by the Coordinating Committee of the OECD Global Science Forum

We, the parties, agree:

to conduct our research according to the standards of research integrity, as defined in the 'Guidance Notes for Developing Procedures to Investigate Research Misconduct Allegations in International Collaborative Research Project'[1] and other appropriate documents, including: (specify the national codes of conduct and disciplinary or national ethical guidelines that apply);

that any suspected deviation from these standards, in particular alleged research misconduct, will be brought to the immediate attention of (all designated contact point(s)) and investigated according to the policies and procedures of (to be filled in with the body with primary responsibility), while respecting the laws and sovereignty of the States of all participating parties;

to cooperate in and support any such investigations and to accept (subject to any appeal process) the conclusions of any such investigation and to take appropriate actions.

[1] www.oecd.org/dataoecd/42/34/42770261.pdf

The following Code of Conduct was based on *The European Code of Conduct for Research Integrity*, which after years ofintensive work was declared in 2010 by the European Science Foundation (ESF) and All European Academies (ALLEA)to be a model document to serve other European Union countries as a framework for their own codes of conduct.

To prepare this Code the following works were also used: *Good Research Practice. Recommendations* drawn up by the Ethics Team of the Scientific Research Committee (2000) and *Good Manners in Science. A Set of Principles and Guidelines* drawn up bythe Committee for Ethics in Science of the Polish Academy of Sciences (2001).

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