



**UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH**

Code of Research Integrity of the Universitat Politècnica de Catalunya

**Governing Council Decision CG/2022/03, of 5 March
2022, approving the Code of Research Integrity of the
Universitat Politècnica de Catalunya**

UPC Ethics Committee

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PREAMBLE

Society relies on scientific and technological research to increase knowledge, find solutions to its problems, and discover tools and ways to improve the quality of life of citizens. It is for these reasons that public authorities support and finance research. To serve its function properly, research activity must be carried out with the strictest integrity, which means that it must be incorruptible and characterised by the utmost probity.

The Universitat Politècnica de Catalunya (UPC) has always demonstrated a commitment to maintaining high levels of integrity in all its areas of activity. As stated in its statutes, the University must encourage critical thinking in science and the arts and defend principles of freedom in education and research; seek to promote the peaceful use of scientific, technical, artistic and humanistic knowledge and ensure that such use respects human rights; and put such knowledge at the service of building a culture of peace. The University must ensure transparency in all of its actions and at all levels of decision making in order to facilitate accountability to society. It must also respect the principle of equal opportunities between people, with an emphasis on non-discrimination on the grounds of birth, ethnicity, gender, age, appearance, religion, ideology, sexual orientation, gender identity, gender expression, social status, functional diversity or any other circumstance.

The Statutes also specify that “the competent bodies of the University must promote the adoption of codes of good scientific practice”.

The UPC has a set of instruments to ensure the ethics, integrity and quality of relevant processes and procedures.

The first is the UPC Code of Ethics, which applies to all teaching, research, innovation and university extension activities carried out at the institution. The UPC’s Ethics Committee oversees the application of this code and in many cases agrees the principles to be followed in new aspects of scientific progress.

This code focuses specifically on the regulation of research integrity. It defines the honest conduct that should govern all research activity. It is a code of professional conduct that must not be breached. The Code is a set of principles and standards concerning the practice of scientific activity and serves as a collective instrument of self-regulation. Its content complements the provisions of existing legal regulations. It reflects the UPC’s firm commitment to promoting good research practice.

Finally, in order to ensure that the codes are applied correctly, operating procedures that guarantee the quality of the system must be clearly defined.

As a tool to ensure compliance with these general principles, the UPC has established this code of research integrity.

BACKGROUND

In the drafting of this code, international framework documents on research integrity have been taken into consideration (mainly at the European level but also others that are broader in scope when they have been adopted by the European Union). By way of example, the following documents have been considered:

2005, EC: The European Charter for Researchers. The Code of Conduct for the Recruitment of Researchers.

2007, OECD: Best Practices for Ensuring Scientific Integrity and Preventing Misconduct.

2010: Singapore Statement on Research Integrity. Second World Conference on Research Integrity.

2011, ALLEA: The European Code of Conduct for Research Integrity. Revised edition (2017).

2013: The European Commission's Framework Programme for Research. Horizon 2020.

The Code has also been drafted in line with current legislation and regulations.

Title I. General provisions

Article 1. Subject matter, scope and aims

1.1. This code aims to establish a legal framework to govern the integrity of UPC research and is part of a set of instruments that the UPC has developed to ensure the ethics, integrity and quality of relevant processes and procedures. It is intended to serve as a collective instrument of self-regulation that helps to create a framework of integrity for research and contributes to fulfilling the general principles that guide the UPC, as set out in its statutes.

1.2. This code applies to the entire university community with respect to all research and research-related activities, whether carried out wholly or partially at the UPC.

The research process is carried out mainly by teaching and research staff, but also by students in their learning process. Administrative and service staff may also be involved in the research process as technical support staff, advisers, or in the context of research management.

All staff from other institutions and companies that carry out research activities at the UPC on a permanent or temporary basis must be familiar with and respect this code, without prejudice to their compliance with the regulations of their company or institution.

Similarly, UPC staff who carry out research activities on a permanent or temporary basis at other institutions or companies must comply with this code and the regulations that apply in the place where they perform the activity in question.

1.3. Aims of the Code

The aims of the Code are as follows:

- To establish the principles and standards of integrity that should govern UPC research activity.
- To promote the adoption of good scientific practices throughout the University.
- To facilitate the provision of advice on research integrity, analysis and prevention of conflicts related to integrity, and the resolution of any problems or conflicts that may arise in relation to this issue.
- To support the organisation and delivery of information and training activities on research integrity.

Article 2. General principles

Over and above the principles specified in the UPC Code of Ethics and those set out in the UPC Statutes, this code focuses on the principles that should underpin research integrity and serve as tools for assessing the integrity of scientific practice. It is organised around the following six principles, which characterise good scientific practice. For each principle, a description of the impact it may have on research practice is provided. The descriptions relate the principles to the standards set out in Title II.

Principles can be regarded as “virtues” of a good researcher that guide them towards the right decisions in all kinds of circumstances. By their nature, principles are less subject to change and are adopted individually and consciously, whereas standards, which are external to individuals, must be adapted or expanded as research practices change. Principles also serve to guide actions and decisions in cases not covered by the standards described in Title II. They must sometimes be weighed against each other when it is not possible to fully adhere to all of them.

- 2.1. **Honesty:** Researchers must report the research process accurately, consider alternative opinions and counterarguments, be open-minded as regards uncertainty, refrain from making unfounded claims, refrain from fabricating or falsifying data or sources, refrain from presenting results in a way that is more favourable or unfavourable than merited, and respect the authorship of any contribution, including fair citation of members in the case of work produced by a team.
- 2.2. **Reliability:** Researchers must use scientifically rigorous methods and exercise the greatest possible care in designing, directing, executing, reporting and disseminating research. This also means that researchers must not promote pseudo-scientific, pseudo-technological or fraudulent practices that exploit the social prestige of science and technology and seek to manipulate or mislead using unreliable methods.
- 2.3. **Transparency:** Researchers must ensure that it is clear what data their research was based on; specify how the data was obtained, what the results are, and how they were generated; and indicate the role played by external stakeholders. This means explaining the methodology, processes and algorithms used to conduct the research in order to ensure that the results can be reproduced by other researchers. If parts of the research or data are not made public, researchers should explain why this is the case. Researchers must make clear how the research was conducted and what the various stages of the research process were. The line of reasoning must be apparent, and it must be possible to verify the steps in the research process.

- 2.4. **Independence:** The following must not be influenced in any way by persons or institutions motivated by non-scientific considerations: choice of method, evaluation of data, the value attributed to alternative opinions, and assessment of research or research proposals. In this respect, independence also includes impartiality. Independence is required in the design, conduct and publication of research, although not necessarily in the choice of a research topic or research question. In any event, a rationale for such choices must be provided.
- 2.5. **Responsibility:** Researchers must take into consideration the legitimate interests of all persons and living beings used as test subjects and those of other stakeholders, funding bodies and the environment, and everyone involved in the research process must be treated with respect. Responsibility also means conducting research that is scientifically, socially and environmentally relevant and that meets sustainability criteria. In view of the social mission of science and technology, this principle requires us to conduct these activities in an efficient manner that takes into account their social cost rather than just economic considerations. Responsibility must be practised at every stage, from idea to publication of research, and in relation to any resulting technologies and applications. In this respect, those responsible must be accountable to the appropriate body for the research project they have carried out. The rights of citizens must also be taken into account at all stages of a project. Consideration should be given to who will be the beneficiaries or users of the research, and communication mechanisms should be established from the outset.
- 2.6. **FAIR Principles:** These principles are met by research data that is findable, accessible, interoperable and reusable (<https://www.go-fair.org/fair-principles/>). The FAIR principles ensure that research results are accessible and verifiable by third parties.

Title II. Standards for good research practice

Article 3. Project stages

3.1. Design. Obligations of research staff

1. Research must be relevant from a scientific, technological, social or environmental standpoint, whether because it aims to increase or improve existing knowledge, to replicate or confirm other results that raise questions, or to develop new research methods. Therefore, when determining the topic and structure of research, researchers must consider the interests of science, technology and society, as well as the need to respect the environment, nature and the planet Earth, including all its organisms and elements.

2. The latest scientific advances and knowledge in the field in which research is carried out must be taken into account.
3. The project design must serve to answer the research question.
4. The reliability of the methods used must be clearly substantiated.
5. If a research project is commissioned or funded by a third party, the funding body must always be specified, unless otherwise established.
6. The role of external stakeholders must be considered. In any case, conflicts of interest must be avoided at all times. (A conflict of interest is deemed to exist when a situation arises in which the interests of one or more individuals—personal, professional, financial or of any other kind—interfere or may be perceived to interfere with the performance of their duties.) Individuals must therefore abstain from participating in any matter in relation to which any of these circumstances apply. In any event, the legal provisions in force concerning abstention will apply.
7. In the case of research conducted with external third parties, clear written agreements on research integrity must be established. These agreements should also cover other issues related to applicable laws and regulations, the protection of each party's intellectual and industrial property, and procedures for handling conflicts and cases of misconduct.
8. The data collected must be classified in such a way as to ensure that it can be verified and reused, unless personal data that is not essential to achieve the research objectives is used.
9. Where appropriate, steps must be taken to ensure that any permissions required to carry out the research are obtained. Research projects must also be reviewed by the Ethics Committee where appropriate.
10. Only research work that can be conducted in accordance with the principles and standards set out in this code should be accepted. If joint research is initiated with a third party that is part of an institution that does not have a similar code, the research work can only be accepted if there are assurances that it will be carried out in accordance with the principles and standards set out in this code.

3.2. Project execution

1. Research must be conducted with rigour and precision.
2. The choice of methods, data analysis, evaluation and any dissemination of results must

not be determined based on non-scientific, political or commercial criteria.

3. Results must not be invented, created, falsified or misrepresented by fabricating data or procedures that were not actually carried out, including through the manipulation of images or signals.
4. All results obtained from research must be considered on equal terms, whether they are positive/favourable or negative/unfavourable.
5. Results must not be eliminated or modified without explicit and adequate justification.
6. Researchers must ensure that the sources used are truthful.
7. The data collected and used in research must be described honestly, scrupulously and as transparently as possible.
8. Research data and materials, including those deemed invalid and unpublishable, must be carefully managed and kept under secure protection. Data must be processed according to the FAIR principles for the legally prescribed period, in a way that allows third parties to verify the results obtained. All data generated in measurements of all samples must be included rather than just the net results of calculations or analyses related to the study.
9. The life cycle of data must be transparent with regard to its collection, processing, generation of new data, destination and any future use after the research project has ended.
10. The interests of any living beings involved and risks to research staff and the environment must be taken into account. Legal regulations that apply in these matters and relevant codes of conduct must be observed at all times. Permits related to the use of biological material from animals or humans must be requested and kept up to date.
11. Research staff must keep their level of expertise in their field up to date and preferably undertake work within their area of specialisation or, in the case of multi- or transdisciplinary projects, do so without detriment to the rigour of their discipline.

3.3. Publication and dissemination of results

1. All persons who have contributed to the research and to the collection and processing of data must be given fair recognition, including those who no longer belong to the

relevant group or institution. Persons who have made a contribution that is significant but not sufficient to be listed as co-authors of papers or publications should be mentioned in the acknowledgements.

2. Authorship must be fairly attributed and ordered, in accordance with the standards that apply in the discipline(s) concerned. The order of authorship must allow readers to distinguish and recognise those who are authors and who have contributed most to the research and the person who directed the research and bears final responsibility for it. Their membership of the UPC must also be mentioned.
3. All researchers listed as authors must have made a genuine intellectual contribution to at least one of the following: the research design, acquisition or analysis of data, or interpretation and communication of findings.
4. The moral rights of all authors or inventors, as the case may be, who have participated in developing the research results must be respected and taken into consideration, in accordance with the provisions of applicable intellectual and/or industrial property legislation in force. The authorship of the person who had the original idea must also be acknowledged.
5. All of the researchers who contributed to generating the results must have approved the final version.
6. All of the researchers are fully responsible for the content of final research results unless otherwise stated.
7. Sources, data and arguments must be presented in a rigorous manner.
8. Research staff must be transparent about the method and working procedure they have followed. Research protocols, records or reports should be included where relevant. The line of reasoning must be apparent, and it must be possible to verify the steps in the research process. This typically means that the research must be described in enough detail to allow for the replication of data collection and analysis. This means making drafts or earlier versions of all measurements and analyses performed available to the scientific community.
9. Researchers must be explicit about any related unreported data that has been collected in keeping with the research design and could support conclusions other than those for which information has been included.
10. Significant alternatives that may be relevant for interpreting the research data and results must be made explicit.

11. Researchers must be very clear about uncertainties and contraindications and should not draw unsubstantiated conclusions.
12. When other people's ideas, procedures, results or text are used, sources must be accurately cited to avoid plagiarism. Unjustified or honorific references should be avoided.
13. Unnecessary reuse of previously published texts authored or co-authored by research staff should be avoided. Authors must be transparent about reuse by citing the original publication. Unnecessary splitting of one publication into several to take advantage of academic ranking systems should also be avoided.
14. Needless references that make the bibliography unnecessarily long should be avoided.
15. As far as possible, in accordance with the FAIR principles of open science, research results and data should be made public after the research has been completed. If this is not possible, the reasons why that is the case must be clearly stated. In the event that any body needs to verify the reasons provided, the confidentiality of the data submitted for verification purposes must be ensured.
16. Being honest in public communication and clear about the limitations of the research and one's own experience is essential. Research results should be communicated only if there is sufficient certainty about them; whether or not they have confirmed the hypothesis put forward should not be a consideration.
17. The participation of each person involved in the research must be clearly and honestly stated.
18. Dissemination to the public of research carried out with public funds and all research that is not restricted by confidentiality agreements should be encouraged.
19. Dissemination of research in journals and conferences with rigorous evaluation processes and editorial committees with recognised expertise in the relevant field should be encouraged. When choosing the means of dissemination, priority should be given to societal impact rather than personal recognition.

3.4. Assessment and peer review

1. Assessments and peer reviews carried out by research staff must be performed with rigour and objectivity.
2. Research staff must respect the confidentiality of information acquired in the context of an assessment and refrain from using such information unless explicit consent to do

so has been given.

3. They must not use the peer review system to generate additional citations without any justification with the aim of increasing their own or other people's citation scores.
4. Research staff must refrain from making an assessment if there are any doubts concerning their independence or potential conflicts of interest. In no case should research staff provide a negative or positive assessment on the basis of their own interests in the research.
5. Research staff should not perform an assessment outside their area of expertise or should only do so in general terms.
6. They should be generous, accept invitations from journal editors, and be willing to review studies conducted by other researchers.
7. Research staff should not contribute to journals that do not apply integrity standards in their publications.

3.5. Standards that are applicable in all stages of research

1. Research staff, whether supervisors, principal investigators or research directors, must promote an open and inclusive culture in all stages of research, in accordance with the principles of open science. They must ensure that all research staff under their supervision comply with integrity standards.
2. They must not delay or hinder the work of other research staff in an unreasonable way.
3. They should immediately bring any research-related non-compliance that occurs to the attention of the person in charge or the competent body so that steps can be taken to remedy the problem as soon as possible.
4. Research staff are responsible for the use and management of research sources and for any material or equipment made available to conduct the research. Research sources, material and equipment must not be misused.

Article 4. Obligations of the institution

The UPC must provide a working environment that promotes and safeguards good research practice. It must ensure that research staff can work in a safe, inclusive and open environment in which concerns about dilemmas can be shared and mistakes can be discussed without reproach.

Internal regulatory bodies must endeavour to ensure compliance.

The University has an ethics committee, which, among other functions, is responsible for advising on and evaluating ethical issues that are relevant to the UPC's various areas of activity.

The Ethics Committee is available to any member of the UPC community to respond to queries concerning the interpretation of the Code of Ethics and the Code of Research Integrity.

4.1. Training and supervision

1. The UPC must take measures to raise awareness of research integrity and, where appropriate, provide or facilitate the organisation of training activities for research staff, support staff, research directors and research managers so that all members of the community can be expected to be aware of the integrity principles and standards established by the institution.
2. The University must provide a working environment in which responsible and respectful research practices are facilitated.
3. It must ensure that trainee research staff and students are supervised by appropriately qualified individuals who have the time and resources required to perform this role.
4. It must also ensure transparent and fair procedures for appointments, promotions and remuneration.

4.2. Research culture

1. The UPC must ensure compliance with all relevant legal regulations, codes of conduct, instructions and relevant protocols that apply to the institution.
2. It must promote a research culture that incorporates the standards set out in Article 3 and take action if there are indications that they are not being met or there is a risk that they will not be met.
3. It must provide clear instructions, protocols and other means to support the university community, help members understand these instruments and, if necessary, train them in good research practice in their discipline.
4. It must take appropriate measures to avoid non-compliance with standards.

5. It must provide an open, safe and inclusive research culture in which research staff can openly discuss standards for good research practice, hold each other accountable for compliance with standards, and are prepared to report any reasonable suspicion of non-compliance using established procedures.

4.3. Data management

1. The UPC must provide an infrastructure in which good data management is the rule and is facilitated.
2. It must take steps to ensure that all data, software codes, protocols and research material, whether published or unpublished, are managed and stored securely for the appropriate period according to the discipline and the methodology used.
3. It must also take steps to make data open and accessible to the extent possible and confidential to the extent necessary. In this regard, the procedure for accessing software codes and research material must be clearly established and stated.

4.4. Publication and dissemination

1. The UPC must ensure that any contracts entered into include fair agreements on access to and publication of research data and material.
2. It must ensure that public communication of research results is performed scrupulously.

4.5. Ethical standards and procedures

1. The UPC must take steps to facilitate ethical reviews where necessary. Such reviews will be carried out via the Ethics Committee, to which the UPC must provide adequate support. This committee must provide research staff with information and advice on ethical issues related to their research projects and review any complaints made in this regard.
2. The committee must make public information on its integrity policy.

Title III. Information management

Article 5. Informed consent and the right to information

1. The autonomy of persons participating in research must be respected. Accordingly, they must have given their prior express written consent to participate in the research after receiving adequate information.

2. Information must be provided in writing prior to participation and should include details of the nature, significance, implications and risks of the research.
3. Information must be provided in accessible conditions and formats that are appropriate for the subjects for whom it is intended and in accordance with their needs.
4. When the participation of minors and/or persons who are legally incapacitated is envisaged, the signature of their legal representatives must be requested.
5. Persons participating in research may revoke their consent at any time.

Article 6. Protection of personal data and guarantees of confidentiality

1. Before personal data is collected and processed, a basic risk analysis must be carried out to define the organisational and technical measures to be adopted.
2. Steps must be taken to ensure that processing of personal data is lawful and complies with the conditions established by applicable legislation in force at all times.
3. Data subjects must be informed of anything that affects the processing of their personal data at any stage of processing so that they know and understand what is being done with their data.
4. The personal data collected must be adequate, pertinent and limited to what is necessary in relation to the purposes for which it is processed. Personal data may not be further processed in a manner that is incompatible with the initial specified, explicit and legitimate purposes for which it was collected.
5. As a general rule, processing of special categories of data should be avoided. In the event that processing of personal data of this kind is deemed necessary, a risk analysis—and where appropriate an impact assessment, as determined by the supervisory authorities—must be carried out and submitted to the University's data protection officer to be taken into consideration.
6. Personal data must be treated confidentially and with an appropriate level of security, including protection against unauthorised or unlawful processing and against accidental loss, destruction or damage. The duty of confidentiality will continue even after the related research has been completed.

TRANSITIONAL PROVISION

The principles and good practices set out in this code will apply to all research projects from the date on which it enters into force. Research projects initiated before the entry into force of this code will be considered on a case-by-case basis before an opinion is given.

FINAL PROVISIONS

One. Interpretation

The Ethics Committee of the Universitat Politècnica de Catalunya is responsible for interpreting this code.

Two. Revision

This code must be reviewed regularly and may be modified if necessary. Reviews of the Code will be carried out by the Ethics Committee of the Universitat Politècnica de Catalunya.

Three. Entry into force

This code comes into force the day after its approval by the Governing Council of the Universitat Politècnica de Catalunya.