CODE OF GOOD PRACTICES IN RESEARCH

CONTENTS

1. INTRODUCTION.

The Universidad Politécnica de Cartagena (henceforth UPCT), amongst its essential functions, gathered, among others, in Article 2 of its Statutes, takes on scientific research and the transfer of its results, as well as the training of researchers and support staff to both tasks, considering the specific features of each of the fields of knowledge. The decisions in matters of research and innovation must take into account the principles on which the European Union is based, namely, respect for human dignity, freedom, democracy, equality, the Rule of Law and the respect for human rights, including the rights of minorities.

As a tool to move towards achieving these goals and as an ideal framework into which different scientific practices must fit so as to ensure that the practice of Scientific Research in the UPCT is rigorous, ethical, honest, respects the rules and is responsible; the present Code of Good Practices in Research is established.

This Code has been prepared by the Committee for Ethics in Research of the UPCT (henceforth CEI-UPCT) and following its approval by the Research Commission and subsequent ratification by the UPCT Governing Council, the UPCT staff and associated organisms that develop their research activities of whatever nature shall be free to adhere to it.

2. OBJECTIVES AND SCOPE.

- Improve the quality of research in all fields.
- Establish mechanisms to ensure the honesty, responsibility, traceability, and rigour of research.
- Acquire good scientific practices in the training stage of researchers.
- Implement good practices in the planning, execution, and presentation of all research work.
- Foster the transfer and protection of research results through the reglementary channels established by the institution.

The Code of Good Practices is a complementary instrument and not a substitute for the existing legal regulations.

3. GENERAL PRINCIPLES.

3.1. Honesty and Responsibility.

Researchers are responsible for their own practices; they must also report and combat any cases of fraud, falsification or plagiarism that comes to their knowledge.

3.2. Rigour.

Research must be carried out following well projected work protocols and which, if necessary, can be examined and understood by any other field researcher.

3.3. Justice.

The principle of justice must be respected, in the sense that the benefits and drawbacks of the research shall be equally distributed amongst all the groups and classes in society, considering and minimising the inequalities that may occur with regard to sex, socioeconomic status, culture and ethnicity considerations.

3.4. Conflicts of interest.

In the event of a conflict of interest, a researcher must abstain from participating in a project, review process, or any other activity in the scope of science, following the norms established by the institution responsible for the activity.

For the purposes of this code, a conflict of interest will be understood to exist when the researcher intervenes in decisions related to matters in which interests of the public job position concur with their own private interests, or those of their direct family, or interests shared with third parties. Specifically, a conflict of interest will be understood to exist when a researcher finds himself in any of the circumstances outlined in the Public Sector Legal System.

4. STAKEHOLDERS INVOLVED IN THE RESEARCH PROCESS.

Every person linked to the University through a contract or grant for the purpose of acquiring any type of training shall be assigned a tutor, in order to be integrated into a Research and Development Group or into a Research Institute, in accordance with the provisions of the University Statutes.

This person must promote a work atmosphere in which the members of the Group can be trained and develop their aptitudes, and which fosters the exchange of knowledge.

The persons in charge of Groups and the Principal Researchers of projects and research support are obliged to meet the requirements established in the corresponding call, as well as the UPCT's own regulations, laws, and dispositions.

5. SUPERVISION OF TRAINEE RESEARCH STAFF.

Supervision of research is a key way for experienced researchers to share and transmit their knowledge and values to researchers who are in the early stages of their careers.

5.1. Obligations of the director(s) and/or tutor(s).

a) Take responsibility for the training process.
b) Facilitate adequate means and scientific surroundings to the trainee researcher or to the support staff.
c) Ensure that the research is carried out in accordance with the terms and conditions designed by the funding entity, and known by the UPCT.
d) Inform on the workplace health and safety regulations, urging their compliance.
e) Impress upon the trainee researcher/ support staff to follow the Code of Good Practices in Research and to be critical when assessing their work.
f) Carry out their work in such a way as to constitute an example for the trainee researcher to follow.
g) Recognise the work of the trainee researcher and be rigorous and fair in authorship of publications.

5.2. Obligations of trainee research staff.

a) Be fully integrated in the project assigned for their training.
b) Follow the advice and recommendations of the tutor and inform him of their possible initiatives and advances in their results.
c) Recognise the contribution of the tutor in the oral or written dissemination of their results.

d) Respect and value the management, administration work and tasks related to the research activity, as well as making good use of the material means and facilities available.
e) Know and comply with the regulations established by the UPCT, especially in matters of health and safety, economic management, leave and holidays.
f) Be informed of and follow the safety regulations and procedures, as well as respecting the Code of Good Practices in Research.
g) Sign the commitment document together with the thesis director and tutor on the supervision functions of doctoral students in the manner established in the International Doctoral School.
h) Carry out the research activities and their own study in line with their status as trainee researchers and with the dedication and harnessing required, as well as participating in the monitoring procedure for doctoral theses.
i) Act ethically when informing of the results obtained in the course of the doctoral thesis.
j) Maintain in secret the data and information that they are provided with or is revealed to them, and which may be considered confidential information.
k) Inform the thesis director regularly of the evolution of the work, the results obtained, the problems that may arise in its development, and consider the comments and suggestions that the director may make.

5.3. Rights of the trainee research staff.

a) Receive quality training in research, which promotes scientific excellence and attends to fairness and social responsibility.
b) Have a tutor who orients their training process and/or a director and, if applicable, a codirector, with contrasted research experience, who supervises the carrying out of the doctoral thesis.
c) Participate in programmes and calls for research training help and for national and international mobility.
d) Participate in the training activities organised in the master's degree or doctorate programme required for their research training.
e) Apply for, with reasons, a change in thesis director, to take the doctoral thesis part-time, an extension in presenting the thesis, or temporary leave from the doctorate programme, in accordance with the terms established in the regulations in force.

f) Be considered, with regard to representation rights in the governing organs of the University, as a trainee researcher, in compliance with that established in the legislation in matters of science and research..
g) Be recognised as the holder of intellectual or industrial property rights that may correspond to them under the legislation in force and appear as co-author in all the work, articles, or communications in which the doctoral student has participated relevantly in the research work.

6. RESEARCH PROTOCOL.

6.1. Formulation of the research project.

All the research projects that are being carried out must be known to the University, and in turn, have all the required authorisations, in view of the nature of the project.

Experiments and observations must be carefully designed with rigour and intelligence, ensuring the best use of the resources available and complying with the regulations regarding work and the prevention of work risks in the laboratory that exist at any time.

6.2. Exceptionally urgent research.

When determined circumstances demand the establishment of research to be started immediately, the start of the activities must equally be supported by an action protocol, albeit simplified.

As soon as is possible, these protocols must be reviewed and processed according to the procedures required for regular protocols.

6.3. Collaboration on projects.

When collaboration is foreseen between different research groups from one or several institutions on a research project, the scope and terms of the combined collaboration, the determination of the custody and storage of the data or samples obtained, and in the case of possible commercial implications, the matters pertaining to funding and conflict resolution must all be formalised in writing.

In multidisciplinary research projects in which professionals with different research priorities and procedures participate, it shall be necessary for the participants to accept the need for common ethical interests, gather the data responsibly and administer them consistently, protecting the rights of both the social community as well as the professional integrity in research circles.

6.4. Responsibility in the use and administration of resources and infrastructures related with research.

The UPCT shall support the research activity and the transfer of its results by means of dedicating part of the budget to expenses related with fostering research, as well as the acquisition and maintenance of the scientific infrastructure.

The material resources assigned to research must be used effectively and efficiently, administered correctly and responsibly to achieve the objectives foreseen, and generate the greatest possible degree of confidence in the society.

The facilities and scientific equipment must be adequate to carry out the planned research activities.

Both the researchers and the collaborating staff must follow, in the use of the resources, criteria of responsibility, economy and effectiveness, in accordance with workplace health and safety regulations, and respecting the environment.

Any equipment that is used in research activities must be subjected to preventive maintenance to ensure user safety. The researchers shall not make changes or alterations in the facilities without the knowledge and authorisation of the UPCT.

7. MANAGEMENT AND USE OF THE DATA AND MATERIALS RESULTING FROM RESEARCH.

In general, and notwithstanding what is stipulated in the projects that are developed under the auspices of agreements with other institutions, the research carried out in the UPCT shall fulfil the following criteria in matters of management and use of the data acquired in the course of them.

7.1. Plan for data collection and conservation.

Every research protocol must contemplate the system for data collection, registers and material resulting from executing the research, as well as the plan for their custody and conservation.

7.2. Register of data and rectifications.

All the data, with no exceptions, that result from the experiments or observations of the research must be collected. This information must remain permanently registered in data bases, laboratory notebooks or in any other relevant format, and in conditions to be reviewed by third parties. The registers shall also include the changes, errors, negative, unexpected, or discordant results, as well as the person who carried them out or observed them.

7.3. Conservation of data and samples.

All the primary and original information, as well as the digital, biological, or chemical material stored as a result of any research, must be conserved in secure conditions, for periods of time that shall vary depending on the nature of the research.

7.4. Custody and access to the data gathered.

All the persons who are part of the research team must be able to access the data obtained and their interpretation. The person in charge of the research shall have a register of data (logbooks, data bases, etc.) and of custody of samples, the access to which must be in conditions to be put at the disposition of third parties.

7.5. Ownership of the data and samples.

All the primary documentation (data collection logbooks, data bases, etc.) and the material obtained in the course of the research is the property of the institution to which the person in charge of the project is linked.

A researcher who changes institution may obtain from the person in charge of the project a copy of part or all of the registers, when specific clauses contained in the project do not impede it.

When the person who changes institution is the person in charge of the research, this transfer of materials shall be performed with prior authorisation of the institution of origin and under their responsibility and supervision.

7.6. Use of data and samples by third parties.

The data and the materials resulting from research work must have the condition of being public and be in conditions to be shared with third parties, with the exception of those cases in which a priori restrictions have been established or legal restrictions exist for their publicity or distribution. Ceding the materials shall require the prior knowledge of the use that the person applying for them is intending to make of them, the knowledge of the application by the research team and a transfer protocol with the approval of the person in charge of the research.

7.7. Protection of personal data.

Processing personal information must follow the directives of the General Data Protection Regulation (GDPR) approved by the European Union (R2016/679) regarding the protection of natural persons with respect to the processing of personal data and to the free circulation of this data, as well as the Organic Law 3/2018 of 5 December, for the Protection of Data and Guarantee of Digital Rights.

8. RESEARCH PROJECTS SPONSORED BY INDUSTRY AND OTHER FOR-PROFIT ENTITIES.

Research projects sponsored by industry and other for-profit entities must feature in a written agreement of conformity with the following premises:

- The public interest must come first in the exchange or transfer of knowledge and technology with private entities.
- When the research staff who participate in a project promoted by industry contribute essentially in its design and execution, the necessary agreements shall be established with the promoting entity so that the University can exercise its rights on industrial and intellectual property.
- The researchers must protect the intellectual freedom of their projects, avoid disproportionate confidentiality commitments or unjustified restrictions in the publication of the results obtained.
- Agreements must be made with total transparency.

9. PRACTICES FOR PUBLICATION, PROTECTION, AND DISSEMINATION.

9.1. The publication as the product of the research process.

The dissemination and publication of the original and unpublished results in journals and other peer-reviewed media is a fundamental activity in any research work, given that it is the means to make the scientific community participate in and subject the results obtained to review.

In this terrain the University encourages the research staff to follow the best practices in publishing, as detailed in the directives of:

- The Publication Ethics Committee (http://publicationethics.org/)
- The International Committee of Medical Journal Editors (http://www.icmje.org/)
- The council of Science Editors (http://www.councilscienceeditors.org/).
- Open Science: https://www.openaire.eu/

In this sense, it is recommended to make use of the UPCT institutional repository, which is totally compatible with traditional scientific publishing, but which seeks to facilitate a much broader dissemination.

9.2. Responsible research and innovation.

Responsible research and innovation supposes anticipating and assessing the possible implications and expectations of society with respect to the research and innovation, with the aim of fostering the design of research and innovation which is inclusive and sustainable.

9.3. Oral communications.

In oral communications on the content of research, the same standards of honestly must be followed as in publications, avoiding exaggerating the relevance and practical applicability of the results.

9.4. Revision of errors.

In the event of errors being detected in the content of a publication, they must recognise said errors, preferably in the same medium in which it was originally published. The retraction of the whole publication shall be necessary in the event of serious errors.

9.5. Protection of results with a possible commercial interest.

If the results obtained in research may lead to inventions or applications that are potentially susceptible to being protected due to their commercial interest, the person in charge of the research project has the obligation to communicate that to the UPCT services and to manage the publication of the results in scientific journals taking this possibility into account.

9.6. Unpublished results.

Not publishing, or excessive delays in doing so, of the results of research carried out with public funding, may constitute a form of misuse of resources, except if said delay is related with the legal protection of the results obtained. The publication of results from clinical trials in which persons have participated constitutes an ethical imperative.

9.7. Fragmented publication.

Fragmented publication of parts of the same work shall be avoided, except for reasons of length or if so required by editors. The whimsical fragmenting of a research unit for publication is not considered acceptable.

9.8. Repeated publication.

Duplicated or redundant publication is considered an unacceptable practice, except for that related to publications of reviews or brief communications in congresses, conferences, or similar events.

9.9. Bibliographical references to third parties.

Both in publications as well as in patent dossiers or utility models, it is necessary to include a reference to all works directly related with the research and, in turn, avoid unjustified or honorific references.

9.10. Acknowledgements.

The acknowledgements section of a publication must be strict. The persons or institutions alluded to have the right to decline from being mentioned. The same practice is applicable to mentions referred to personal communications.

9.11. Institutional credits and help.

Both in communications to congresses and other types of prior presentations and in the definitive publication of results, the following must be declared and acknowledged explicitly, unless they have declined from being mentioned:

- The institutions or centres that the authors of the work belong or belonged to and the place where the research has been carried out.
- The independent ethics committees which supervised the research protocol, as well as the specific permissions obtained, whenever this is the case.
- The grants, financial help, or economic sponsorship received to carry out the research.

9.12. Publications in open access.

Publications in open repositories shall meet the same criteria as the other means of publication and always in agreement with the institutional policy. In this sense, in 2006, the UPCT adhered to the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, which favours and promotes publication models that advocate for free access to the scientific and academic production generated by researchers.

9.13. Presentation in media.

The presentation of results through mainstream media must always include an explanation of an informative nature or a part of the presentation adapted to unspecialised audiences. In this type of public presentations, the name of the authors must always be associated with their institutions and, whenever possible, the grants and help received shall be mentioned.

Researchers are responsible for the veracity, reliability and objectivity of the information that they communicate, ensuring that it is rigorous and has sufficient scientific basis. The expression of personal opinions must not be confused with the posture of the University if it has one.

9.14. Premature presentation of results.

In general, the premature presentation of results must be avoided. Only public utility reasons could justify this type of presentation.

10. AUTHORSHIP OF SCIENTIFIC WORK, PUBLICATIONS, AND PATENTS.

The condition of author does not depend on belonging to a profession or certain hierarchical position, but to the contribution to the research that gives rise to said work, publication, or patent.

The order of authors must be set out according to the accepted guidelines in the discipline of the work, which must be previously known to all the authors. The work and the contributions of collaborators and support staff must be appropriately recognised. Likewise, any conflict of interest must be made public.

In order to be an author of a publication or patent, it is necessary to satisfy the following conditions:

- Have participated substantially in the creative process, i.e., in conceiving and designing it, or in the analysis and interpretation of the data and the final discussion based on the background to the topic.
- Have contributed in the preparation of the resulting communications, reports, or publications.
- Be able to present in detail the personal contribution to the research and to discuss the main aspects of the research as a whole.

10.1. Provision of data, opinions, or test subjects.

Merely participating in obtaining the resources or in gathering data such as, for example, supplying routine data or providing test subjects does not necessarily justify being an author.

10.2. Partially responsible authors.

In general, all the authors referred to in a particular publication must know its text and be responsible for its content.

10.3. Honorary and ghost authors.

The person linked to the Research group who, due to their hierarchical position or labour relation, requests to appear as an ex oficio author, contravenes academic freedom and commits an act of injustice, when not an abuse of authority.

Conversely, the omission of the name of any person who has made proven contributions in line with the criteria detailed in section 10.1, supposes an act of misappropriation of intellectual property on the part of the rest of the authors.

10.4. Indication of authorship in reports.

The edition of memories, work, or technical reports or any other written documents directed to third parties, must always include the list of the persons authoring the research or inquiry, the institution that they depend on and the grants received, all expressed in the same terms as in a scientific publication or a patent.

10.5. Shared main authorship.

When in a work two or more authors have dedicated the same effort and shared the main labour in preparing the manuscript, they shall have the same consideration as first authors. Said circumstance shall be explicit in the original publication.

10.6. Signature of the *curriculum vitae*.

When preparing the personal *curriculum vitae*, the author is responsible for the veracity of its content. When it is a collective curriculum vitae, it is enough that it is endorsed by the person in charge of the group or the person in charge of presenting the application.

11. PRACTICE OF PEER REVIEW

The preferential method used by the scientific community to examine and assess research projects, *curricula vitae*, diverse merits, and written work is peer review, since it enables the quality and scientific rigour to be assessed.

11.1. Honesty in review processes.

Reviews must be objective and impartial, based on scientific criteria, constructive, clear, and precise, as well as sufficiently well argued.

11.2. Confidentiality of reviews.

The assessment process must be subject to strict confidentiality conditions, both against the persons involved (authors, researchers, etc.) as well as in relation to third parties. Reviewers and editors shall not use the information that they have had access to during the assessment process, without prior, specific, and express authorisation from the author.

12. EXISTING REGULATIONS GOVERNING CONCRETE ASPECTS OF THE SCIENTIFIC ACTIVITY.

Some aspects of scientific activity are regulated by specific regulations at regional, national, or supranational level. Researchers must know and respect the regulations applicable in their work setting.

12.1. Areas of research subject to specific regulations.

Research relating to, at least, the following topics is currently the object of specific regulations:

a) Biomedical experimentation in humans or of samples taken from them.
b) The use of animals in experimentation.
c) The use of risky microorganisms.
d) The use of genetically modified organisms.
e) Research on human beings, their data, or their remains in the scope of Humanities and Social Sciences.
f) Processes with a possible environmental impact.

12.2. Specific UPCT regulations.

In the UPCT, the research work subject to specific regulations listed in section 2.1 must be authorised by the CEI-UPCT.

13. MODIFICATIONS TO THE CODE OF GOOD PRACTICES IN RESEARCH.

The present Code must necessarily have flexibility and be adapted to the changing reality of scientific and technical research. The Governing Council, the President of the CEI-UPCT or one third of its members shall be able to present proposals to reform the present Code to the CEI- UPCT. The reform must be dealt with in an ordinary session and approved by absolute majority of the members of the CEI-UPCT. Once approved in the Commission, the President of the CEI-UPCT shall remit the reformed Code, for approval, to the UPCT Research Commission, which shall take it to the Governing Council for ratification.

14. REQUIREMENT OF ACTION OF THE CEI-UPCT BY UPCT PERSONNEL.

Any member of the university community at the UPCT shall be able to pose any question which they understand to be in the remit of the scope of its mission, consisting in emitting reports, proposals and recommendation on matters pertaining to the ethical implications of research to the CEI-UPCT, in writing to the President of this Committee. The CEI-UPCT shall be able to exercise the representation of the UPCT in supranational and international fora and organisms involved in the ethics of research.

The President of the CEI-UPCT, upon receipt of a request for action by this Committee from a member of the UPCT, shall inform the Committee about its content and the existence of said request. In such a case, he shall decide on the relevance of convening the CEI-UPCT to deal with the matter in question.

ADDITIONAL DISPOSITION

All the articles in these regulations that use the generic masculine form are to be understood as being applicable to any person regardless of their gender.