Code of Good Practice in Research

1. Introduction
As a research-led institution, the University of Glasgow is committed to providing an environment that recognises and supports research excellence. Central to this aim is an obligation to ensure our research is conducted to the highest quality standards.

The University conducts its research business in accordance with the Concordat to Support Research Integrity (2012)\(^1\). This Concordat sets out a framework for good research conduct and its governance in the UK; it is pertinent to all research disciplines and places an emphasis on the responsibilities and accountabilities of all research stakeholders.

There are four core principles of the Concordat which should be considered in all aspects of research. These are:

- **Honesty**, including in the presentation of research goals, intentions and findings; in reporting on research methods and procedures; in gathering data; in using and acknowledging the work of other researchers; and in conveying valid interpretations and making justifiable claims based on research findings.
- **Rigour** in line with prevailing disciplinary norms and standards; in performing research and using appropriate methods; in adhering to an agreed protocol where appropriate; in drawing interpretations and conclusions from the research; and in communicating the results.
- **Transparency and open communication** in declaring conflicts of interest; in the reporting of research data collection methods; in the analysis and interpretation of data; in making research findings widely available, which includes sharing negative results as appropriate; and in presenting the work to other researchers and to the general public.
- **Care and respect** for all participants in and subjects of research, including humans, animals, the environment and cultural objects. Those engaged in research must also show care and respect for the stewardship of research and scholarship for future generations.

The following sections detail the implementation of these principles in compliance with the Concordat.

2. Scope of the Code
This code of good practice in research is for all staff, including technical and other support staff and persons with honorary positions and students carrying out research at, or on behalf of, the University.

Individuals who fail to maintain the high standards of research practice outlined in this Code of Practice may be subject to investigation via the Code of Policy and Procedures for Investigating Allegations of Misconduct in Research\(^2\) and may ultimately face disciplinary proceedings\(^3\).

3. Good Research Practice

3.1 Compliance with Policies
All staff and students should be familiar with the University policies and procedures that govern the research process\(^4\). These policies are referred to throughout this Code and can be accessed via the links provided in Section 5.

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\(^1\) The Concordat to Support Research Integrity can be accessed at: [http://www.universitiesuk.ac.uk/highereducation/Pages/Theconcordattosupportresearchintegrity.aspx#U6AI5yHTzTp](http://www.universitiesuk.ac.uk/highereducation/Pages/Theconcordattosupportresearchintegrity.aspx#U6AI5yHTzTp)

\(^2\) Policies applicable to research can be accessed at: [https://www.gla.ac.uk/research/strategy/ourpolicies/](https://www.gla.ac.uk/research/strategy/ourpolicies/)

\(^3\) The University’s Disciplinary Procedures are available on the HR web-pages under “Policies and Procedures”. The procedure outlines the sanctions possible up to and including dismissal. The Student Conduct procedures are available on the Senate Office web-pages under “Working with Students”. The procedure outlines the sanctions up to and including expulsion.
In addition, the University expects researchers to observe the standards of practice set out in any relevant legislation and the guidelines published by funders and relevant professional bodies. The receipt of funding from external agencies requires the University to confirm compliance with their terms and conditions; it is therefore essential that all researchers are aware of their responsibility to observe these standards during their work.

3.2 Submission of Research Proposals
Principal/Lead Investigators should take all reasonable measures to ensure the accuracy and completeness of information that is contained in applications for funding. It is the Principal/Lead Investigator’s responsibility to ensure that the planned research is robust and properly financed.

3.3 Ethical and Regulatory Issues
All ethical and regulatory considerations must be taken into account before any research work commences. For non-clinical research involving human participation, the University’s Procedures for the ethical consideration of non-clinical research must be adhered to. For any research that involves NHS staff, facilities, patients, samples, tissue or data, the approval of an appropriate NHS research ethics committee must be gained before commencement. Researchers are advised to contact the University’s Research Governance Manager in the first instance to discuss any research that may involve human participation, including research involving human tissue and/or data.

Research involving animals should have approval through the University’s Ethical Review Process and may require Home Office licences for the institution, the investigator and the project. Researchers should consider, at an early stage in the design of any research involving animals, the opportunities for reduction, replacement and refinement of animal involvement (the three Rs).

Other ethical concerns, such as research that may damage the environment or the use of sensitive economic or social data, should also be considered at the inception stage.

3.4 Intellectual Property and Commercialisation
Researchers should be aware of, and take appropriate steps to protect, any intellectual property (IP) arising from their work. The University wishes to encourage the development and exploitation of its intellectual property, through whichever means is most appropriate, to the benefit of the University, its staff and as part of its contribution to society.

Researchers, including students and their supervisors, should be aware of the University’s Intellectual Property and Commercialisation Policy, which includes details of rights to any IP, and any income generated from their work.

3.5 Conflicts of Interest
It is the responsibility of researchers, team leaders, Heads of School/Research Institute Directors and other senior staff to identify and declare any conflicts of interest, whether of a legal, ethical, moral, financial, personal or other nature, so that it does not become a complicating or actionable issue. The University’s Conflicts of Interest Policy provides detailed guidance on this matter.

3.6 Documenting Results, Storing Data and its Future Use
Throughout their work, researchers are required to keep clear and accurate records of the procedures followed and of the results obtained, including interim results. This is necessary not only as a means of demonstrating proper research practice, but also in case questions are subsequently asked about the conduct of the research or the results obtained. Advice on secure storage of data during a research project can be sought from IT services. Advice on secure storage of data after a research project has ended can be sought from the Research Data Management (RDM) Service.

A data management plan (DMP) should be prepared for all research projects that will generate data. The University recommends the use of DMPPonline for preparing DMPs. Costs associated with good research management can be included in award applications, and researchers should consult the RDM Service for guidance.

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4 Contact the University’s Research Governance Manager (Debra.Stuart@glasgow.ac.uk)
5 http://www.gla.ac.uk/services/it/informationsecurity/
6 http://www.gla.ac.uk/services/datamanagement/
7 https://dmponline.dcc.ac.uk/
Research data should also be accompanied by sufficient metadata (information about the data) to put the data into context. Guidance on generating metadata is available from the RDM Service.\(^8\)

The University expects researchers to ensure that data of long-term value (for example, data that underpin a publication or thesis, or that will form the basis of a future funding application) will be securely held for a period of ten years after the completion of a research project, or for longer if specified by the research funder or sponsor.

Regardless of the ownership of any IP, the University requires continued access to data of long-term value which has been generated using University resources if the member of staff or student leaves the University. Retention of data is necessary for several reasons, including the need to comply with funders’ data access policy, and to assist in the investigation of research misconduct allegations. Note that this policy aligns with the current need to retain laboratory books 10 years after a project has ended.

The University is committed to ensuring that data derived from publicly funded research is made available to other organisations and individuals. Once results have been published, the University expects researchers to deposit the data available in a trusted repository (for example, Enlighten: Research Data\(^9\) or a funder or subject repository) for long-term safekeeping and, subject to any restrictions by the funder or due to legal, ethical or commercial sensitivity, make the data openly available.

3.7 Publishing Research

3.7.1 Expectations on researchers.
Researchers have an obligation to communicate their research; indeed, it is usually a condition of research funding that the results are published in an appropriate form. One of the best systems for communicating research results is for them to be peer-reviewed through the refereeing process, and communicated to the research community for verification or replication.

The person with overall responsibility for the research programme should authorise publication of results. Authorisation should cover both the content of the paper — integrity of results, adequacy of internal peer review, appropriate protection of IP rights, appropriate authorship — and the intended place of publication.

3.7.2 Choosing the most appropriate publication venue.
Selecting the most appropriate journal or publisher to approach to publish research is complicated, and depends on the subject area and the specific research topic. Mentors, line managers and colleagues from the relevant disciplinary area are best placed to offer expert advice. However, some generic guidance is provided here:

3.7.2.1 Be clear about your intended audience. Is the research of a specialist nature, and therefore likely to be of significant interest to fellow specialists, or is the research most relevant to workers in a related field(s)? Aim for the venue with the widest audience you can expect to attract. Nearly all research requires financial investment, and honouring that investment implies publication of the research by a journal or publisher that reaches the largest number of interested parties. Some journals/publishers have a better track record for making research visible than do others.

3.7.2.2 Seek critical review of your work. At the drafting stage, seek the input of experienced co-workers and peers who can appraise your manuscript. On submission, for one’s most significant work it is advisable to select a journal/publisher that devotes the time of both professional editors and expert referees to provide this critical feedback. This external input can result in a final manuscript that is better expressed and argued than the original submission.

3.7.2.3 Make your work accessible. In many areas of research, particularly in the case of journal articles, a publication needs to address three main points: an articulation of the state of the art; the advance that is being reported; and why the advance is relevant to researchers working in the field of the paper and potentially more widely. The questions seem obvious, but they are frequently overlooked by assuming that the reader is as well-versed in the research as the authors.

\(^8\) [http://www.gla.ac.uk/services/datamanagement/organisingyourdata/documentation/](http://www.gla.ac.uk/services/datamanagement/organisingyourdata/documentation/)

\(^9\) University of Glasgow Research Data Management Policy: [https://www.gla.ac.uk/media/media_555892_en.pdf](https://www.gla.ac.uk/media/media_555892_en.pdf)

\(^10\) [http://researchdata.gla.ac.uk](http://researchdata.gla.ac.uk)
3.7.2.4 Communicate your work beyond publication. Publication of your work is not the end of the process — quite the opposite. To ensure the maximum reach and impact of your research you should engage with experts in the University for advice on promoting your publication through a variety of channels and tools. Guidance is available on the University website11,12.

3.7.2.5 Be familiar with open access requirements for publications and data. The University and its funders are committed to open access publications and data, and to broadening opportunities for high-quality research findings to be widely disseminated and freely available6,12,13,14. Guidance on how to manage the open access of data, including issues arising from ethics considerations and IP rights, can be found on the research data management website6. Researchers should therefore consider the open access options offered by potential publishers of their research, and how these align with the open access requirements of funders and the REF15,16 (see 3.7.2.6 below). Staff are encouraged to make their outputs open access regardless of whether these result from funded research.

The University requires all staff who are designated as the lead University of Glasgow author for journal articles or conference proceedings to notify the library17 of accepted publications. This notification should take place as soon as the article has been accepted for publication. If you have received a definitive notice of acceptance from the editor please contact the library; do not wait until the article is finalised and published online. The Library will then work with the author to ensure that the publication complies with the funder’s requirements for Open Access. The lead University of Glasgow author for journal articles or conference proceedings should also ensure that a data citation is included in articles, indicating the funder name(s), the funder’s official award number, and how and on what terms any underlying data can be accessed.

Authors of monographs and book chapters should similarly consider routes to open access; the Library may be able to advise. Furthermore, staff should ensure that publications other than journal articles or conference proceedings are recorded in Enlighten by informing the Enlighten Team at the acceptance stage18.

3.7.2.6 Research assessment exercises. The Research Excellence Framework (REF) is the current system for assessing research quality in UK higher education institutions (HEIs). Conducted jointly by the UK’s four funding bodies for Higher Education, the REF informs the selective allocation of government funding for research, and is one of the key measures by which our research is judged by our peers. The exercise is therefore of great financial and reputational importance to the University.

REF exercises take place once every 6–7 years, and assess the research quality of institutions across all academic disciplines by evaluating three dimensions: outputs19, impact, and environment. The next REF will take place in REF 2021. Information on the REF and our preparations for the next exercise can be found here15. Staff should familiarise themselves with the REF eligibility criteria for outputs.

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11 https://www.gla.ac.uk/myglasgow/staff/research/development/rescomms/
12 https://www.gla.ac.uk/myglasgow/research/indicators/
13 http://www.gla.ac.uk/myglasgow/openaccess/howdoimakemypublicationsopenaccess/openaccessprocess/
14 Concordat on Open Research Data: http://www.rcuk.ac.uk/research/openaccess/concordat-on-open-research-data/
15 The University became a signatory to the Concordat on Open Research Data in November 2017.
16 Information on REF 2021 (HEFCE) http://www.hefce.ac.uk/rsrch/refs2021/
17 Authors should send the acceptance email from the publisher to the Library: research.openaccess@glasgow.ac.uk
18 Enlighten Team in the Library: research-enlighten@glasgow.ac.uk
19 In addition to printed academic work, research outputs may include, but are not limited to: new materials, devices, images, artefacts, products and buildings; confidential or technical reports; intellectual property, whether in patents or other forms; performances, exhibits or events; work published in non-print media. (Source: definition of output, REF2014 guidelines).
3.7.3 Authorship

3.7.3.1 What constitutes authorship? Clarity on what constitutes authorship is important in the context of good research practice. In line with the general guidance given by the Medical Research Council\textsuperscript{20} (and endorsed by Research Councils UK), the University expects authorship credit to be based on:

i. substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data;

and normally

ii. drafting the article or revising it critically for important intellectual content.

In some instances, it is unrealistic to ask each individual author to take responsibility for every aspect of the research. Also, where an author is highly specialised they might not have had a role in drafting the final publication (see the guidance from the International Committee of Medical Journal Editors (ICMJE)\textsuperscript{21}). However, it is important to note that, if the integrity of a piece of work is called into question, then all authors will be collectively held accountable.

3.7.3.2 Agreeing on what constitutes authorship or other contributions. Where it is possible that a person may be named as an author on a paper for contributions other than drafting an original text, colleagues are advised to discuss authorship at the outset of a collaboration and to keep a written record of decisions. This record should include an agreed definition of the expected contributions of each collaborator and whether these are worthy of authorship (i.e. what constitutes a ‘substantial’ contribution to the work) or simply an acknowledgment; expectations around order of authors on a publication, and how authors will keep track of contributions during the project (e.g. through the use of a log).

Authors should express in a clear manner the contribution that they have made to the published work, in the publication itself wherever this is permitted. The following CASRAI (Consortia Advancing Standards in Research Administration Information) document\textsuperscript{22} may be helpful in articulating roles and contributions, and is being used by several academic journals.

Furthermore, anyone listed as an author on a paper must accept personal responsibility for ensuring that they are familiar with the contents of the paper, that they can identify their contributions to it, and take public responsibility for these.

3.7.3.3 What to do if a dispute arises. Participants of collaborative projects should agree at the outset on a procedure on what to do should an authorship dispute arise. In the first instance, it is expected that an internal discussion would take place between the collaborators. If this fails to lead to a resolution, advice should be sought from a Research Integrity Adviser or senior academic that is external to the project. The process should ensure that junior researchers feel able to raise any concerns in the knowledge that the issue will be treated as a dispute rather than as misconduct.

3.7.3.4 Avoiding poor practice. The practice of granting honorary authorship is against the guidance referenced above. Conversely, all individuals who make a substantial contribution to a paper must be listed on the publication.

Furthermore, each author who is listed on an output must be made aware that they have been named and must agree to be listed. Contributions to the work that do not qualify for authorship should be acknowledged formally, as should financial support from funders and sponsors. Authors are responsible for obtaining written permission from persons acknowledged by name. The practice of granting honorary acknowledgement (e.g. to funders that did not fund the work reported in the paper) is also not appropriate.

It is essential that authors are aware of the risks of copying ideas, data or text of others without permission or acknowledgement. In addition, self-plagiarism, the act of verbatim copying and reusing one’s own research results in multiple publications, without attribution, is not acceptable. This policy is not intended to preclude the routine sharing of ideas or results, nor the advancement of knowledge based on

\textsuperscript{20}Medical Research Council: Good Research Practice: Principles and guidelines: http://www.mrc.ac.uk/documents/pdf/good-research-practice-guidelines-and-standards

\textsuperscript{21}http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html

\textsuperscript{22}http://dictionary.casrai.org/Contributor_Roles
appropriately referenced existing data or results. Staff should be guided by practice in their field and the terms of re-use of any data, text or results that they access.

Additional advice on authorship is available from the UK Research Integrity Office\textsuperscript{23}.

3.7.3.5 ORCID (Open Researcher and Contributor ID). It is strongly recommended that all colleagues sign up to ORCID to ensure that their work is recognised and not confused with work by others of the same name. ORCID identifiers are also increasingly being required by funders and publishers. Please contact the Enlighten Team in the Library for support\textsuperscript{24}. Colleagues who have an ORCID should notify the Library of their ID to allow it to be added to their Enlighten (online publications repository) record.

3.7.3.6 Author affiliation. Authors should ensure that their affiliation to the University of Glasgow is accurately worded in the publication, using an address of the format below and a University of Glasgow email address. If publishers place constraints on the available space, the phrase “University of Glasgow” must be prioritised.

Dr A. N. Other,  
School/Institute of X  
College of Y  
University of Glasgow  
Name.Surname@glasgow.ac.uk

3.7.3.7 Retraction and Erratum. Researchers have a responsibility to ensure that any inconsistencies or errors in their published material are rectified in a timely manner. If the University receives information regarding allegations of fraudulent or manipulated data published by a student or staff member it has an obligation to investigate and, if necessary, rectify the errors.

3.8 Responsibilities for Good Research Practice

All individuals involved in research on behalf of the University have a responsibility to ensure they are familiar and compliant with the University’s and their funders’ policies and they meet the expected standards of rigour and integrity relevant to their research.

The Concordat to Support the Career Development of Researchers\textsuperscript{25} emphasises that researchers should take a proactive role in their own personal development. Researchers must ensure that they undertake appropriate training to enable them to meet these requirements. As well as taking advantage of the range of training and development opportunities provided across the University, research students are required to attend workshops in core skills, including research integrity and ethics as directed by their Graduate School.

3.8.1 Responsibilities of Senior Staff

Individuals in authority set the culture and tone within any organisation. It is the responsibility of the Principal, Vice Principals / Heads of College, Deans of Research, Heads of School / Research Institute Directors and other staff to ensure that a climate is created which allows research to be conducted in accordance with good research practice.

Within each College nominated senior academic colleagues have a role in promoting good research practice and may investigate repeated errors or mistakes to determine what remedial action is required. Details of College contacts are available on the University web pages\textsuperscript{26}.

3.8.2 Responsibilities of a Principal Investigator / Supervisors

Overall responsibility for good research practice within a research area lies with the lead academic or Principal Investigator (PI) or research student’s supervisor. These individuals should create a research environment of mutual co-operation, in which all members of a research area are encouraged to develop their skills and supported to reflect best practice in relation to ethical, legal and professional requirements. PIs / Supervisors should ensure that every member of their research group is aware of the University’s and their funders’ policies and provide people in their charge with opportunities to undertake relevant

\textsuperscript{24}Authors should contact the Enlighten Team with their ORCID identifier: research-enlighten@glasgow.ac.uk (For more information on ORCID see: http://www.gla.ac.uk/services/enlighten/orcid/)
\textsuperscript{25}https://www.vitae.ac.uk/policy/concordat-to-support-the-career-development-of-researchers
\textsuperscript{26}https://www.gla.ac.uk/myglasgow/ris/researchstrategypolicies/researchintegrity/
Staff supervising postgraduate research students are required to attend regular update sessions as directed by the Graduate School.

4. Poor Research Practice and Research Misconduct
The University strives to embed a culture of research integrity in both its staff and students, and is committed to supporting a research environment that is underpinned by a culture of integrity and based on good governance, best practice and support for the development of researchers. The University's Code of Policy and Procedures for Investigating Allegations of Misconduct in Research is compliant with the principles outlined by the UK Research Integrity Office and sets out a process to enable all allegations to be investigated thoroughly, fairly and expeditiously and with care and sensitivity.

Any member of the University who has concerns about a research conduct issue or might be considering making an allegation of research misconduct should in the first instance seek advice from a College Integrity Adviser. Integrity Advisers will, following consultation with a College Integrity Champion, undertake a preliminary assessment of the concerns and advise the individual on how best to proceed in accordance with the procedures described in the Code of Policy and Procedures for Investigating Allegations of Misconduct in Research. An attempt should initially be made to resolve the issue informally.

In the event that the outcome of this approach is not satisfactory or if such an approach is believed to be inappropriate, a formal allegation should be made to the College Integrity Champion, who will notify the Clerk of Senate of the allegation as soon as possible.

If, for any reason, the individual believes that it is inappropriate for the allegation to be made to the relevant Research Integrity Adviser or Research Integrity Champion, a formal allegation can be made directly to the Clerk of Senate using the contact details below:

Clerk of Senate
Senate Office
Gilbert Scott Building
University of Glasgow
G12 8QQ
UK

Email: research-policy@glasgow.ac.uk

It is important to recognise that genuine errors do occur and can, in general, be managed effectively at source. Each College has nominated senior academic colleagues who have a role in promoting good research practice and may investigate repeated errors or mistakes to determine what remedial action is required. Staff and students will receive training and mentoring as required should this be deemed necessary.

In some instances, repeated poor research practice may be referred to the Clerk of Senate.

27Contact details of Research Integrity Champions and Advisers are available at: https://www.gla.ac.uk/myglasgow/ris/researchstrategypolicies/researchintegrity/advisers/
5. Key University Policies and Guidance

5.1 Research Conduct
- Policies relating to the ethical review of non-clinical research: http://www.gla.ac.uk/services/rsio/researchstrategypolicies/ourpolicies/ethicshomepage/
- Advice on undertaking research that involves NHS staff, facilities or patients: https://www.gla.ac.uk/colleges/mvls/informationforstaff/clinicalresearch/researchgovernanceframeworkstudies/
- University’s statement on the use of animals in scientific procedures: https://www.gla.ac.uk/research/strategy/ourpolicies/opennessinanimalresearch/
- Information on the University’s Data Protection guidelines and policies: http://www.gla.ac.uk/services/datamanagement/creatingyourdata/dataprotectionethics/
- Guidance on managing research records in accordance with the Data Protection Act: http://www.gla.ac.uk/services/dpfoioffice/guidanceonresearch/

5.2 Publication Ethics
- MRC guidance on Good Research Practice: http://www.mrc.ac.uk/research/research-policy-ethics/good-research-practice/

5.3 Interactions with the Wider Community
- The Policy Governing Externally Funded Activities
- The IP & Commercialisation Policy
- The Consultancy Policy
All found at: https://www.gla.ac.uk/research/strategy/ourpolicies/

6. Useful Further Information

6.1 General Research Requirements
- UK Research Integrity Office: http://www.ukrio.org/home/
- Medical Research Council’s Scientific misconduct policy and procedure: https://www.mrc.ac.uk/documents/pdf/mrc-policy-on-research-misconduct/
- EPSRC’s Guide to Good Practice in Science and Engineering Research: https://www.epsrc.ac.uk/funding/howtoapply/basics/goodpractice/
- The Wellcome Trust’s Guidelines on Good Research Practice: http://www.wellcome.ac.uk/About-us/Policy/Policy-and-position-statements/WTD002757.htm
- Research Councils UK. Core Terms & Conditions for Research Grants: http://www.rcuk.ac.uk/funding/grantstcs/
- Universities UK Concordat to Support Research Integrity: http://www.universitiesuk.ac.uk/highereducation/Documents/2012/TheConcordatToSupportResearchIntegrity.pdf
- Concordat on Open Research Data: http://www.rcuk.ac.uk/research/openaccess/concordat-on-open-research-data/

6.2 Research Involving Human Participation
• Scottish Executive's Research Governance Framework for Health and Community Care (updated 2006):
• ESRC: Research Ethics Framework:
  http://www.esrc.ac.uk/funding/guidance-for-applicants/research-ethics/

6.3 Research Involving Animals
• Animals (Scientific Procedures) Act 1986:
• Wellcome Trust Policy on the Use of Animals in Medical and Veterinary Research:
  http://www.wellcome.ac.uk/About-us/Policy/Policy-and-position-statements/WTD002764.htm
• Medical Research Council: Responsibility in the Use of Animals in Medical Research:
  https://www.mrc.ac.uk/research/research-involving-animals/regulation-and-policy/#2.2responsibility