

GOOD RESEARCH PRACTICE

POLICY AND PROCEDURES

WITHIN THE UNIVERSITY OF ST ANDREWS

I. INTRODUCTION

This document, intended for all staff, including persons with honorary positions, carrying out research at, or on behalf of, the University, contains:

- guidelines on good research practice,
- the definition and identification of misconduct in research, and
- essential steps in handling allegations of misconduct in research where these relate to a member of University staff*.

* *Note that where the allegations of misconduct in research are raised against a student (either undergraduate or postgraduate) then the procedures that are set out in Academic Misconduct Policy (Students) must be applied <http://www.st-andrews.ac.uk/students/rules/academicmisconduct/>.*

The University of St Andrews Policy and Procedures governing Good Research Practice have been developed to emphasise the importance of integrity and rigour in all research carried out at, and in partnership with, the University. The policy covers openness, supervision, training, intellectual property, the use of data and equipment, publication of research results and ethical practice. All staff, students and research visitors engaged in research within the University, and externally on behalf of the University, must ensure that research is carried out responsibly in conformity with the law and in accordance with best current practice, irrespective of the source of funding.

Research sponsors cannot be prescriptive about individual approaches taken by researchers in solving particular research problems. However, sponsors can reasonably expect the University to ensure that an adequate policy framework exists that promotes and promulgates good research practice that emphasises integrity and rigour in research and that creates a culture in which the following general principles can be understood and observed. Among the University's leading sponsors, The Director General and Chief Executives of the Research Councils have published a joint statement entitled Safeguarding good scientific practice (page 13):

<http://www.rcuk.ac.uk/cmsweb/downloads/rcuk/researchcareers/gapanalysis.pdf>

II. ELEMENTS OF GOOD RESEARCH PRACTICE

Good research practice includes the following aspects:

- maintaining a research culture that encourages professional standards,
- documentation of results,
- securing and storing primary data,
- questioning one's own findings,
- attributing honestly the contribution of others,
- leadership and cooperation in research groups,
- taking special account of the needs of young researchers, and
- ensuring procedures are ethical.

In addition to its own Code, the University of St Andrews requires those engaged in research to be fully aware of, and to be in compliance with, the appropriate external protocols and statements governing their research activity. Links to Codes and guidance on good research practice of external bodies are listed in Appendix 1.

III. INTEGRITY

Researchers should be honest with respect to their own actions in research and in their responses to the actions of other researchers. This applies to the whole range of research work, including designing experiments, generating and analysing data, applying for funding, publishing results, and peer reviewing the work of other researchers. The direct and indirect contributions of colleagues, collaborators and others should be acknowledged (see Section VI. Publication and Dissemination of Results).

Researchers are accountable to society, their professions, the institutes where the research is taking place, the staff and students involved and, in many cases, to the sponsor that is funding the research. Researchers are expected to understand and apply the following principles:

- Plagiarism, deception, or the fabrication or falsification of results are regarded as serious disciplinary offences, and
- Researchers are encouraged to report cases of suspected misconduct, and to do so in a responsible and appropriate manner.

Areas of potential conflict might include instances where researchers have an existing or potential financial interest or other personal gain in the outcome of the research.

IV. OPENNESS

Whilst recognising the need for researchers to protect their own academic and, where appropriate, intellectual property rights (IPR), the University would encourage researchers to be as open as possible in discussing their work with other researchers and with the public. The aim in disseminating charity-funded or University research is to increase knowledge and understanding; its purpose should not be primarily to seek publicity for the researcher, for the University or for the sponsor.

Once results have been published, the University expects researchers to make available relevant data and materials to other researchers, on request, provided that this is consistent with any ethical approvals and consents, which cover the data and materials, and any intellectual property or contractual rights in them.

Sponsors recognise that publication of the results of research may need to be delayed for a reasonable period pending protection of any intellectual property arising from the research. Any such periods of delay in publication should be kept to a minimum, and this should normally be no more than three months.

Researchers should be especially careful when discussing work that is not complete or has not been published, particularly if it has not undergone peer review. Exchange of confidential information by e-mail is not recommended, especially if patent applications are anticipated. Data should not be sent to a country that does not have adequate ethical safeguards.

V. PRIMARY DATA, SAMPLES AND EQUIPMENT

There should be clarity at the outset of the research programme as to the ownership, and use of, where relevant:

- Data and samples used or created in the course of the research,
- The results of the research,
- Questionnaires, and
- Equipment paid for by sponsors.

The responsibilities and procedures for the storage and disposal of data and samples (including compliance with the requirements of any ethics committee) should be made clear at the commencement of any project. Any research collaboration agreement relating to the research should contain clauses describing any necessary arrangements.

Researchers should keep clear and accurate records of the procedures followed and the approvals granted during the research process, including records of the interim results obtained as well as of the final research outcomes. This is necessary not only as a means of demonstrating proper research practice but also in case questions are subsequently asked about either the conduct of the research or the results obtained. Properly maintained notebooks may be used in evidence when establishing ownership of inventions in the US under their "first to invent" patenting system.

Data generated in the course of research should be kept securely in paper or electronic format, as appropriate. Back-up records should always be kept for data stored on a computer. It should be remembered that research, including that based on clinical samples or relating to public health, may require long-term storage for follow-up to occur.

Researchers should report any major changes in the direction of sponsored research to the sponsor or any other relevant body. Best practice would be to discuss any change in direction of the research with the sponsor prior to its implementation. The University's model research agreements normally provide a mechanism for handling this process.

VI. PUBLICATION AND DISSEMINATION OF RESULTS

The University encourages the publication and dissemination of the results of high quality research but believes that researchers must do this responsibly and with an awareness of the consequences of any such dissemination in the wider media.

The University tries to ensure that sponsors understand that researchers must have academic freedom and sponsors should not discourage publication or the dissemination of research or research findings. The University recommends that every effort should be made to inform the sponsors of any potential publication or dissemination of the research findings. This will enable the sponsor in question to have adequate time and accurate information to liaise with the University in order to protect any arising intellectual property or to plan public relations. Publicity may be important to industrial sponsors and to fund-raising charities and is increasingly important to the University itself. Advice on press releases and publicity can be obtained from the University's Press Office: <http://www.st-andrews.ac.uk/pressoffice/>. Researchers should take into account the following guidance when publishing or disseminating their research or research findings, including any plans they may have to publish or publicise research at conferences or on web sites.

- Papers in internationally recognised peer refereed journals, conferences of international standing and dissemination in the form of books and monographs are encouraged.
- Researchers should make every effort to allow research to be peer reviewed prior to it being published, publicised or disseminated. If research is placed in the public domain before peer review has been undertaken, the researcher and/or publisher should make this clear in any publicity.
- It is normal practice to acknowledge funding sources in publications or publicity unless the sponsor states otherwise.
- Some sponsors require advance notification of the results of research being published, publicised or disseminated.
- Anyone listed as an author on a paper should accept responsibility for ensuring that he or she is familiar with the contents of the paper and can identify his or her contribution to it. The practice of honorary authorship is unacceptable.
- The contributions of formal collaborators and all others who directly assist or indirectly support the research should be both specified and properly acknowledged.
- Prior to public disclosure, researchers should consider their results to determine if novel findings might have commercial application and, if so, consider protecting intellectual property.

Examples of good publication practice can be found in the [Committee on Publication Ethics guidelines 'Good Publication Practice'](#) and on the [Nature web site](#).

VII. INTELLECTUAL PROPERTY

Research can lead to results that have the potential to be exploited commercially. Research outcomes in this category may need protection via nondisclosure or other agreements and the filing of patents. As soon as research results are in the public domain, which includes any form of disclosure to third parties, options for exploitation are inhibited. In line with national policies, the university positively promotes exploitation of research through university spin-out companies or

licence agreements with external partners, but appropriate alternative routes may be consultancies or other forms of knowledge transfer. Guidance is provided by the [Knowledge Transfer Centre](#) when novel intellectual property arises from research, such that appropriate measures can be put in place to safeguard intellectual property. There may also be a requirement to inform the sponsor of the research results.

Research councils and charities fund research for public benefit and not for direct commercial or private gain. Public benefit may arise from education, i.e. the gain of knowledge that is placed in the public domain or, in the case of biomedical research, improvement in the treatment or care of patients or in the prevention or cure of diseases. Charities cannot support a piece of research solely for the purposes of commercial gain although commercial benefit from the exploitation of the results of the research may accrue to their inventor(s), the University and, by agreement, to any charitable sponsor of the research.

VIII. ETHICAL PRACTICE

Approval from the University's Teaching and Research Ethics Committee (UTREC): <http://www.st-andrews.ac.uk/utrec/> is required for all research that involves human participants or human biological samples, even if ethical approval is needed or has been obtained from elsewhere. Approval should be obtained prior to any research beginning.

In most cases, funding bodies expect the relevant regulatory approval to be in place before funding is allocated to a researcher.

The University reminds researchers of the importance of obtaining necessary regulatory approval from bodies such as:

- Human Fertilisation and Embryology Authority or
- Gene Therapy Advisory Committee.

In some cases, it also may be appropriate to seek the views of relevant patient groups.

Researchers should ensure the confidentiality of personal information relating to the participants in research and that the research fulfils any legal requirements, such as those of the Data Protection Act 1998 and of the NHS Research Governance Framework: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4108962

The University and its sponsors require that research involving animals should have been subject to the following (through the appropriate bodies):

- Ethical Review Process and
- Home Office licence application.

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". The University recommends that researchers should refer to [AMRC's guidelines on 'Promoting good practice in research involving animals'](#).

IX. PATIENT AND/OR CONSUMER INVOLVEMENT

Researchers should consider and be aware of the active involvement of individuals (e.g. patients, informants, victims of conflict, etc) and members of organisations (e.g. financial institutions, consumer groups, etc) in research and in the dissemination of research findings. Disclosure Scotland offers a service for those working with children or vulnerable groups.

It is important that researchers in the biomedical areas consider the impact any publication of research findings may have on patients with the condition under investigation, those involved in their care, those involved in the research and on consumer groups. Further details about user involvement may be found in the NHS document "Research: What's in it for consumers?": http://www.invo.org.uk/pdfs/whats_in_it_for_consumers.pdf and the MRC's "Guidelines for Good Clinical Practice in Clinical Trials" 1998:

<http://www.mrc.ac.uk/Utilities/Documentrecord/index.htm?d=MRC002416>

X. CHARITIES

Charities can only fund research that falls within their charitable objects. Charity law imposes certain obligations and restrictions on the use of charitable funds for research, for example, a requirement to disseminate research findings and a proscription on funding research for the purpose of commercial or private gain. The objectives of medical charities may focus on a particular disease or condition, a range of diseases or, more widely, on improving human health through education and research. Researchers should note these obligations when in receipt of charitable funding, regardless of the source, and that these obligations apply to the University itself, which has charitable status.

XI. LEADERSHIP AND CO-OPERATION

Heads of institutions and their senior colleagues should ensure that a research climate of mutual co-operation is created in which individual researchers and all members of research teams are encouraged to develop their skills and in which the open exchange of ideas is fostered.

XII. SUPERVISION AND TRAINING

The University wishes to ensure that appropriate training and direction of research and supervision of researchers is available. Training in supervisory skills is provided as part of the University's overall staff development programme.

Guidance for supervisors includes advice on frequency of contact, level of feedback on progress, responsibilities regarding scrutiny of primary data, and the broader development needs of research trainees and students.

Supervisors should supervise all stages of the research process, including outlining or drawing up a hypothesis, preparing applications for funding, the design of experimental or research protocols, planning the conduct of fieldwork or other research outside the institution, data recording, data analysis and presentation of results according to the appropriate conventions.

The University offers many courses (see Appendix 2) to enable students and new researchers to understand and adopt best practice in research as quickly as possible. Supervisors should encourage students and colleagues to attend relevant courses as part of their overall career development. Lists of courses are available on the Human Resources' Staff Development web site, <http://www.st-andrews.ac.uk/staff/ppd/Courses/>,

and relevant courses are increasingly available as part of the University's GRADSkills programme. GRADSkills also provides Supervisor Update sessions.

XIII. GUIDANCE FROM PROFESSIONAL BODIES AND LEGISLATION

Where available, the University expects researchers to observe the standards of research practice set out in guidelines published by scientific and learned societies, and other relevant professional bodies.

All researchers should be aware of the legal requirements, which regulate their work noting particularly health and safety legislation and data protection. Detailed information is available from the University's Environmental Health and Safety Services:

<http://www.st-andrews.ac.uk/staff/policy/Healthandsafety/Publications/HealthandsafetypolicyoftheUniversity/court/> and <http://www.st-andrews.ac.uk/dataprot/>, respectively.

XIV. DEFINITION AND IDENTIFICATION OF MISCONDUCT IN RESEARCH WHERE THESE RELATE TO A MEMBER OF UNIVERSITY STAFF

Misconduct in Research may be broadly classified into a number of categories, namely:

- Fabrication/falsification in proposing, carrying out or reporting the results of research. This also relates to the accuracy of information in connection with applications for funding or reporting the outcomes of research funding.
- Plagiarism, misquoting, taking undue credit or other misappropriation of the work of others. This also includes the unethical use of privileged material (for example, material seen in reviewing or refereeing).
- Failure to follow established protocols, particularly if such failure results in unreasonable risk or harm to others or to the environment.
- Ethically and morally inappropriate use of the outcomes of research.
- Collusion in or deliberate concealment of any of the above actions entered into by others.
- Failure to comply with relevant legal requirements or legally binding agreements.

XV. ASSESSMENT PROCEDURES (STAFF)*

* Note that where the allegations of misconduct in research are raised against a student (either undergraduate or postgraduate) then the procedures that are set out in Academic Misconduct Policy (Students) must be applied <http://www.st-andrews.ac.uk/students/rules/academicmisconduct/>.

The University has agreed upon, and will implement, the following procedures in cases of misconduct in research related to staff. These procedures are intended to be fair to both complainant (the person or persons making the allegations) and respondent (the person or persons against whom the allegations are made) and to provide speedy and just outcomes in the event of alleged misconduct perpetrated by one of its members being brought to the attention of the University. To this end, the University aims to protect the complainant from inappropriate pressure to desist from lodging a complaint and the respondent from actions arising from malicious intent or based on inaccurate or misunderstood evidence.

- (a) Any allegation of misconduct in research must be brought to the attention of the Head of the School concerned. The complainant may choose to do this either directly or through the respondent's immediate supervisor. In either case, the allegation at this stage must be formalised in writing by the complainant before proceeding further. The Head of School will then conduct a preliminary investigation of the issues raised and will notify both the complainant and the respondent, within 10 working days, of the outcome of this investigation or, if this is not possible, of its progress and reasons for the delayed outcome. If the Head of School is himself the subject of the complaint, then the Deputy Principal and Vice Principal (Research) will carry out the role of the Head of School in these procedures.
- (b) The Head of School may conclude that there are no grounds for further action, that the matter should be resolved informally within the school or that there is *prima facie* evidence for formal University disciplinary procedures to be invoked. In the latter case, the matter should be referred by the Head of School to those procedures.

Guidelines for the investigation of allegations of misconduct:

- (c) If the Head of School decides that an investigation is required, (s)he will then instigate such an assessment by (i) gathering and securing of evidence, including, where appropriate, both published and unpublished material, such as laboratory notebooks, laboratory records and data held both on paper and electronically; (ii) copying all such material as (s)he perceives to be relevant to the respondent involved; (iii) notifying the complainant and requiring him/her to maintain the strictest confidence in the matter at this stage; and (iv) identifying and notifying, if appropriate, individuals likely to be material witnesses or able to act as consultants/advisors. The identity of the complainant will be treated in confidence and, in particular, will not be made known to the respondent at this stage. The complainant may, if necessary, be required, either in person, or through a signed statement, to substantiate evidence that is presented to a formal disciplinary hearing.
- (d) The Head of School will then determine, with due haste and diligence, whether there is a *prima facie* case to answer but will not reach a final conclusion concerning malpractice. The Head of School may take appropriate advice from colleagues and may choose to interview

both the complainant and the respondent and any material witnesses or consultants/advisors, as deemed appropriate, and will examine the relevant research records.

- (e) The Head of School will act throughout in the strictest confidence with regard both to the identities of the complainant and respondent, as well as to the evidence that (s)he receives. If (s)he decides there is no *prima facie* case of sufficient merit to answer, then the case will be dismissed and the claimant and respondent informed accordingly. The condition of strict confidentiality will continue to apply. If, on the other hand, (s)he decides that there is a serious *prima facie* case of sufficient merit to answer, then the investigation will proceed to the next and formal stage.

The formal stage invokes the University Disciplinary Procedures for staff and students. Appendix 3 gives links to these Procedures.

- (f) If misconduct has been established by the Disciplinary Procedures, the Deputy Principal and Vice Principal (Research) may, in addition to any sanctions to be imposed, convey the outcome to associated grant-awarding bodies, the editors of any journals which have published articles by the person against whom the allegation has been upheld and any other relevant professional bodies.
- (g) A respondent may make an appeal using the University's formal procedures (see Appendix 2). In making such an appeal, the respondent will be required to provide in writing the grounds for the appeal. A respondent may also make a formal complaint if (s)he has reason to believe that, in bringing the complaint, the complainant has acted unreasonably, vexatiously or maliciously towards him/her.
- (h) If the allegation has not been upheld, the Deputy Principal and Vice Principal (Research) will inform any parties, previously notified of the alleged misconduct, of the outcome.

XVI. ADDITIONAL INFORMATION

Appendix 1: Other sources of information

1. [The UK Research Integrity Office \(UKRIO\)](#)
2. [RCUK Policy and Code of Conduct on the Governance of Good Research Conduct](#)
3. [The Office of Research Integrity \(ORI\) USA](#)
4. [BIS - Department for Business Innovation & Skills](#)
5. NERC Research Grants Handbook:
<http://www.nerc.ac.uk/funding/application/researchgrants/>
6. PPARC Research Grants Handbook:
<http://www.pparc.ac.uk/rs/rgh/rghintro.asp>
7. EPSRC Funding Guide:
<http://www.epsrc.ac.uk/funding/apprev/basics/Pages/fundingguide.aspx>
8. BBSRC Grants Guide
<http://www.bbsrc.ac.uk/funding/apply/grants-guide.aspx>
9. MRC Funding Opportunities Handbook
<http://www.mrc.ac.uk/Fundingopportunities/Applicanthandbook/Grantcalls/Handbookannexes/index.htm>

Appendix 2: Training

The University expects researchers to undertake appropriate training in, for example:

- Research design
- Regulatory and ethics approvals and consents
- Equipment use
- Health and safety
- Record keeping
- Data protection
- Management of intellectual property, including confidential information
- Use of materials requiring statutory registration, such as radioisotopes, pathogenic and GM organisms
- Data management
- Obtaining Home Office licences when using animals in medical research
- Involvement of patients and consumers in research
- NHS research governance requirements
- Conduct of clinical trials

See lists of courses available on the Human Resources' Staff Development web site: <http://www.st-andrews.ac.uk/staff/ppd/Courses/>

Appendix 3: Disciplinary Procedures and Appeals

Staff:

Academic:

<http://www.st-andrews.ac.uk/staff/policy/hr/Disciplinaryproceduresacademic/>

Academic related:

<http://www.st-andrews.ac.uk/staff/policy/hr/Disciplinaryprocedures/>

Non-academic staff:

<http://www.st-andrews.ac.uk/staff/policy/hr/Disciplinaryprocedures/>

Students:

Student discipline:

<http://www.st-andrews.ac.uk/students/rules/ConductDiscipline/Discipline/>

Academic Misconduct Policy (Students)

<http://www.st-andrews.ac.uk/students/rules/academicmisconduct/>

Grievance and Appeals:

Staff:

Academic staff:

<http://www.st-andrews.ac.uk/staff/policy/hr/Grievanceproceduresforacademicstaff/>

Non-academic staff:

<http://www.st-andrews.ac.uk/staff/policy/hr/Grievanceprocedureforallstaff/>

Students:

<http://www.st-andrews.ac.uk/students/advice/AcademicMatters/Appeals/>

Appendix 4: General advice and support for staff and students

UTREC: University Teaching and Research Ethics Committee, FAQs, remit and guidelines:
<http://www.st-andrews.ac.uk/utrec/>

University Policies:
<http://www.st-andrews.ac.uk/staff/policy/hr/>

Research Staff – Code of Practice:
<http://www.st-andrews.ac.uk/staff/policy/hr/Researchstaffcodeofpractice/>

Policy for Supervisors and Students in Research Postgraduate Programmes
<http://www.st-andrews.ac.uk/staff/policy/tlac/postgraduate/research/>

Researchers should declare and manage any real or potential conflicts of interest, both financial and professional. The University's [Financial Regulations](#) and the [External Work Policy Document for Academic and Academic Related Staff](#) contain further information on the declaration of personal interests.

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