



# Guide to Good Practice in Research

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<http://www.bolton.ac.uk/Quality/QAContents/ResearchAndResearchFunding/Documents/PDF/Userguidetoresearch.pdf>

## 1. Introduction

- 1.1 The principles and protocols laid down in this guide are meant to apply to all research conducted in the name of University of Bolton – that is to say, to research conducted by undergraduate and postgraduate students and staff (permanent, temporary, full-time, part-time and visiting), both academic and non-academic, as part of their programmes of study or under the terms of their contract of employment or engagement with the University.
- 1.2 The guide outlines key elements of good practice in research; in planning and preparation, data collection, experimentation, literature searching, analysing and recording results and conclusions and in dissemination. It is based, following the Medical Research Council's publication *Good Research Practice* (2000), on the seven principles enunciated by the Nolan Committee on Standards in Public Life (1995):
- selflessness
  - integrity
  - objectivity
  - accountability
  - openness
  - honesty
  - leadership
- 1.3 The University has published elsewhere a policy on the ethical conduct of research and procedures are in place which mean that all research proposals are adequately scrutinised from this perspective. The guide serves to help ensure that the practice of research will be consistent with the principles outlined in that policy.
- 1.4 Researchers whose work is funded, in whole or in part, by external bodies will be expected to comply with any policies and procedures originating from those bodies to the extent that they are consistent with the guidelines published here.

## 2. General Principles

- 2.1 The fundamental premise on which this guide is based is the absolute necessity of ensuring and demonstrating that all research carried out in the name of the University is conducted in good faith, is of high quality, is socially and ethically responsible and is wholly free from the taint of fraud or malpractice. Where research involves live subjects, it must also be able to show proper concern for the welfare of those subjects, including, where appropriate, full and informed consent and respect for confidentiality. Responsibility for this is

collective and devolves not only on individual researchers but also on teams and especially team leaders, supervisors, coordinators and managers. It applies not just to the design of individual research projects but also to the training, supervision and management of researchers and to those with responsibility for supporting, promoting and disseminating research.

- 2.2 Two elements are essential if this is to be delivered. There must be full transparency of the research process which includes complete documentation and recording of every stage and the normal scholarly apparatus of citation, acknowledgement of sources and referencing. The second is a system of supervision which regularly checks on the research and which can, from time to time, conduct a full “audit trail” back from conclusion to initial proposal. For every research project there needs to be a named individual whose responsibility this is. Staff – and student – development will need to be ongoing if this is to be guaranteed.

### **3. Conflicts of Interest**

- 3.1 Conflicts of interest are perfectly normal and only problematic if left undeclared. The issue is that if there exists a consideration which might – or might be thought to – unduly influence a researcher’s objectivity or to render some conclusions more likely than others, or in any other way affect the credibility of the research project, then those who assess or will be affected by that research have the right to be made aware of it. As suggested above, this can be as much a matter of perception as reality. It is, therefore, wholly appropriate that researchers and research teams declare any material interests as part of both the research proposal approval and dissemination processes. A material interest might be financial or political and might involve the individual or his or her family or associates; in marginal cases the principle should be that it is better that an interest be declared even if irrelevant than be undeclared and subsequently discovered.

### **4. Research Planning and Design**

- 4.1 In the interests of both quality and transparency:
  - 4.1.1 Every stage of the project should be clearly documented and modifications of the methodology, direction or presuppositions of the research should be recorded and dated. This is particularly relevant for laboratory or social survey based research and can be crucial for demonstrating IPR.

- 4.1.2 The researcher/research team leader/supervisor must be able to show that research practice remains consistent with health and safety guidelines, ethical principles and legal requirements at all times.
- 4.1.3 Research involving human subjects must have clear and approved procedures for obtaining the full and informed consent – both to the conduct of the research and to its dissemination - of those involved and must be designed from the outset to protect the confidentiality of the subjects and any data related to them. All projects which collect data relating to individuals should obtain approval via procedures authorised by the University Data Protection Officer.
- 4.1.4 Research involving live subjects should have full regard to the welfare of those subjects and will be subject to ethical approval.
- 4.1.5 All research project proposals should be, where appropriate, subject to an environmental impact audit and, where a product or public policy change is advocated or hoped for, should include consideration of its environmental effect.
- 4.1.6 IPR and copyright issues should be addressed from the outset; in particular, the questions of authorship and proposals for the ownership of patents, copyright etc. should be clearly set down.
- 4.1.7 All project proposals should be consistent with the University's Equal Opportunities and Access policies.
- 4.1.8 All projects should be regularly monitored and progress checked.

## **5. The Research Process**

### **5.1 Information and Advice**

Legal, ethical and policy requirements may change during the lifetime of a project and it is, therefore, the responsibility of the University to ensure that training and updating is available to ensure that all involved fully updated and that they know who they should speak to for advice and guidance. Effective arrangements will be made to disseminate information and policy documents through the relevant committees of the University.

## 5.2 Equipment and Machinery

All equipment and machinery involved in the generation of data will be regularly maintained and calibrated by qualified staff. Every piece of equipment will have a standard operating and emergency shutdown procedures and instructions for these will be easily accessible. It is important to stress that standard operating procedures are important not just for safety but also to ensure comparability and consistency of results. A “passport” system will ensure that staff and students do not use equipment for which they are not properly trained. All research environments will be subject to regular risk assessments and this will be reviewed at intervals by the appropriate site Health and Safety Committee.

## 5.3 Hazardous Materials & Processes

All use of hazardous materials and processes will be subject to University risk assessments and Health and Safety procedures. Waste materials will be disposed of with due regard for appropriate health, safety and environmental regulations. Staff and students involved will receive relevant training.

## 5.4 Consent and Confidentiality

Written protocols will be available to cover the process of obtaining full and informed consent from human research subjects and to protect their confidentiality and that of any data obtained from them. Commercially sensitive research products and processes may be embargoed from publication for a period not normally exceeding two years. The identity of individuals and organisations involved as research subjects will normally be concealed as a matter of course throughout the research process and on publication. Keys may be maintained by the researcher if this is necessary to protect the integrity or viability of the research but will not be published to any third party and procedures which protect the confidentiality of these keys must form a part of the original research proposal.

## 5.5 Gathering, Storing and Retaining Data

5.5.1 The provisions of the Data Protection Act will apply to all data gathered from human subjects. All data gathered must be stored in both their raw and interpreted/analysed form in order to permit retrospective audit. Raw data should be dated and subsequent corrections or additions clearly identified. Special attention should be paid to recording the use and disposal of potentially hazardous (e.g. radioactive) materials. Data stored electronically must be adequately backed up and all data archives

should be stored safely with appropriate contingency plans. Hard copy of particularly important data should be kept. The security of all data, but especially of those with a potential for commercial exploitation or which are personally sensitive, should be maintained. Primary research data should be retained for at least a year after the publication of the results of the project. Research Councils sponsoring projects may require a much longer period than this and their regulations must be adhered to.

5.5.2 Individuals involved in Institute research projects should be aware that data gathered in the course of such projects remains the property of the University. Those who wish, on leaving the University, to retain data or make copies should seek authorisation from the University Secretary. Such authorisation, if given, will be subject to guarantees that the requirements of these guidelines and those of the Data Protection Act will be adhered to.

## 6. Dissemination

- 6.1 It is expected that the results of all research projects will be properly and appropriately disseminated, subject to the demands of any issues of confidentiality and ownership already discussed and agreed. This is essential if the proper business of peer review and evaluation is to be possible. Researchers should aim for a public, ideally peer-reviewed, outcome in a medium appropriate to the discipline and the nature of the research. Publication should be authorised by the supervisor or research team leader who can attest to the integrity, importance and relevance of the research on behalf of the University. Such authorisation should be subject to considerations of protection of IPR and appropriate authorship and may, if the research is externally sponsored, have to be negotiated with the sponsor. Outcomes should normally contain an account of how the research complies with basic ethical and legal requirements as well as a full explanation of the methodology employed.
- 6.2 Authorship should include all those who have made a major contribution to the project and who are familiar with the contents of the publication. It should not include anyone who is not able to take full responsibility for its contents. Other contributions should be duly acknowledged and authors are responsible for securing the necessary permissions for such acknowledgments. Work should normally be published as a coherent entity rather than as a series of small parts unless there is an urgent need to demonstrate first discovery. Multi-authored papers designed to increase quantity of publication will be discouraged. The same data must not normally be published in different places. Any

errors or retractions found to be necessary should be published as soon as is possible.

## **7. Application and Exploitation**

- 7.1 Where possible, the University expects useful and commercially valuable results to be appropriately published and exploited through patents or the formation of development companies. IPR can only be adequately protected if researchers have kept thorough, accurate and contemporaneous research records. All intellectual property, know-how, products and materials generated by University employees or students while on University premises in the course of University approved research projects are and remain the property of the University. However, the University may agree to share the value or proceeds of these with external sponsors or individual researchers. Normally, such agreements will be negotiated at the research proposal stage and the University will be bound by any such contracts formally entered into. All such understandings, agreements and contracts will be subject to the demands of confidentiality, consent and the Data Protection Act.

## **8. Literature Used**

Please see companion document *Code of Policy and Procedures for Investigating and Resolving Allegations of Misconduct in Research*.