THE UNIVERSITY OF
MELBOURNE

Procedures and Guidelines for the Management of Research Data and Records

Prepared by

Information Management

University Library

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QUT: ://www.tils.qut.edu.au/initiatives/researchsupport/datamanage/planning.jsp

Monash: ://www.researchdata.monash.edu.au/

Contents

1.   Introduction

The preparation and retention of appropriate records and data is an essential component of all research. The University, its faculty and its students have a common interest and a shared responsibility to assure that research is appropriately recorded, archived for the required length of time, and made available for review under appropriate and legal conditions. At a minimum, original research records are essential to protect intellectual property rights, to answer ongoing questions regarding management of a research program, and to address possible questions that may arise regarding the propriety of research conduct.

These procedures should be read in conjunction with the current University Policy on the Management of Research Data and Records which outlines the regulatory and policy framework for the management of Research Data and Records at the University of Melbourne. These procedures outline the critical steps for meeting the requirements of the Policy and provide practical advice for achieving compliance. **Appendix A** of these procedures provides a guide for assisting organisational units to develop the local rules around the implementation of the University Policy.

2.   Regulatory and Policy Framework

The regulatory and policy framework guiding the management of research data and records at the University of Melbourne includes:

Government – National and Victorian State	
NHMRC/ARC/Universities Australia - Australian Code for the Responsible Conduct of Research	://www.nhmrc.gov.au/publications/synopses/_files/r39.pdf
National Statement on Ethical Conduct in Human Research	://www.nhmrc.gov.au/publications/synopses/e72syn.htm
Public Records Act	://www.prov.vic.gov.au/about/corporate/legislation.asp
Privacy Act	://www.privacy.vic.gov.au/privacy/web.nsf/content/about+the+information+privacy+act
Privacy Act 1998 (Commonwealth)	://www.privacy.gov.au/
Health Records Act (VIC) 2001	://www.health.vic.gov.au/healthrecords/
University	
Regulation 17.1.R8 University Code of Conduct for Research ://www.unimelb.edu.au/Statutes/r171r8.html	
Policy on the Management of Research Data and Records	
Intellectual Property	Statute 14.1 Intellectual Property ://www.unimelb.edu.au/Statutes/s141.html General Resolutions Including Protocols (Intellectual Property) ://www.unimelb.edu.au/unisec/Srvol1/sr43.html#r415
Privacy	University Privacy Policy: ://www,unimelb.edu.au/unisec/privacy
Research Integrity & Ethics	Research integrity: ://www.research.unimelb.edu.au/integrity Research Ethics: ://www.research.unimelb.edu.au/integrity/conduct/ethics

3.   Legal Issues

The legal context of the collection, management and use of research data and documentation is highly complex. There are a variety of legal issues which need to be considered when developing and planning for the management of your research data and records. It is important that you identify the issues relevant to your research project and seek appropriate advice early in your planning.

3.1   Ownership of Research Data

Clarification of ownership and rights associated with research data is critical to enable its appropriate management, and should be determined early in the project planning. Documentation of these details should be stored with the research data to ensure appropriate management and access to the research data and records associated with the project.

In particular where research is undertaken in accordance with a contractual agreement or under commercial sponsorship the ownership of the research data and records and responsibilities should be determined prior to commencement of the research contract and should be specified in the research contract.

A comprehensive guide for researchers operating under Australian Law has been developed as part of the OAK Law Project[1] and can be accessed for more detailed information. Always check with the Research Office if there are any concerns or ambiguities.

3.1.1   Intellectual Property

Under University of Melbourne policy, *scholarly works* are owned by their creator, where **"scholarly works[2]"** means any article, book, musical composition, creative writing or like publication or any digital or electronic version of these works that contains material written by any member of academic staff, an honorary appointee, a visitor or a student based on that person's scholarship, learning or research, but does not include work that is teaching material or any work that comes within the terms of the University's invention disclosure policy.

- scholarly works created by academic staff, honorary appointees or visitors are owned by them (Statute 14.1.2);

- scholarly works created by students are owned by them (Statute 14.1.3);

- the University has a non-exclusive licence to use scholarly works freely for teaching and research, subject to preservation of the rights of the author (Statute 14.1.4);

The creator of scholarly works may alter the status of ownership by agreement giving these IP rights to the University of Melbourne or a third party.

Contact: The Research Office is best placed to provide advice on more complex aspects of Intellectual Property: ://www.research.unimelb.edu.au/ip/contact/ip.

3.1.2   Copyright and Research Data

Copyright is an intellectual property right that protects a copyright work from unauthorised use[3]. Copyright applies automatically when a work is created, without the need to register or comply with formalities. A

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[1] Please download this document directly from QUT repository: http://eprints.qut.edu.au/14923/1/Microsoft_Word_-_Practical_Data_Management_-_A_Legal_and_Policy_Guide_doc.pdf
[2] University Statute 14.1 – Intellectual Proporty: http://www.unimelb.edu.au/Statutes/s141.html
[3] UKDA website accessed 06072010: http://www.data-archive.ac.uk/sharing/copyright.asp

fundamental concept of copyright is that protection is given, not for ideas or information, but for the form in which they are expressed.

Contact: The University of Melbourne Copyright Office is best placed to provide advice on Copyright
://www.unimelb.edu.au/copyright/contact.html

3.2   Research Involving Human Participants

Researchers conducting human research must operate within the framework of University guidelines[4] for conducting research projects involving humans and the NHMRC National Statement on Ethical Conduct in Human Research (2007)[5]. Material which includes confidential or private information must be managed in accordance with these guidelines as well as any contractual or funding agreements.

Data Management planning should include clear documentation about:
- The nature of any private, sensitive or confidential information that may be collected;
- Non-disclosure agreements and any restrictions on use of the data;
- Consequences/penalties for breaches of confidentiality, and,
- Steps to be taken to safeguard privacy and confidentiality[6].

The following information provides details of special additional requirements that may exist in relation to data and records collected, maintained and used for the purpose of human research.

3.2.1   Privacy

The University Privacy Policy[7] details how the University deals with personal and health information it collects to ensure that it complies with the Information Privacy Act (VIC) 2000[8] and the Health Records Act (VIC) 2001[9]. The University takes its privacy obligations very seriously and a breach of the Privacy Policy may have serious consequences for the University and for staff.

In some instances the University may be contractually bound to comply with Commonwealth privacy laws. This will be when information is received or collected under a contract between the University and a Commonwealth body or agency.

University researchers who are collecting information from or about individuals for their research should also be aware of the requirements and implications of privacy legislation, both state and federal and any privacy policy of relevant organisations and how this may affect the data collection, storage, use and disclosure of the information they wish to collect.

Contact: The University's Privacy Officer is the University Secretary and is best placed to provide advice about more complex aspect of Privacy and how it relates to the management of your research data and records. More information is also available at: ://www.unimelb.edu.au/unisec/privacy/

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[4] http://www.research.unimelb.edu.au/humanethics/application/guidelines
[5] http://www.nhmrc.gov.au/publications/ethics/2007_humans/contents.htm
[6] Guidelines for the Management of Research Data at QUT: http://www.tils.qut.edu.au/initiatives/researchsupport/datamanage/planning.jsp
[7] University Privacy Policy: http://www.unimelb.edu.au/unisec/privacy/
[8] Information Privacy Act (Vic): http://www.privacy.vic.gov.au/privacy/web.nsf/content/about+the+information+privacy+act
[9] Health Records Act (Vic) http://www.health.vic.gov.au/healthrecords/

3.2.2 Consent Forms

The informed consent of participants is a central principle in the conduct of research projects involving human participants. It is the responsibility of the investigator(s) to ensure that consent to participate is both informed and freely given by the participants of their research. Section 2[10] of the National Guidelines provides requirements, risk and benefits associated with Informed Consent.

Consent to participate cannot be seen to be either informed or given freely unless the potential participant has available to them a full description of the project in language they can understand, the nature of their participation and the implications in terms of risks and benefits of participating in the research, including information about what will happen to their information, how it will be used, stored and when it will be disposed of. In most research projects participants are given a plain language information sheet with information about the project and a consent form which outlines what the participants will do if they agree to take part and researchers agree The signed consent form and the information sheet together are proof of the process of informed consent and should be kept together as evidence that the consent to participate was informed and freely given.

In the event of a dispute arising between the researcher and the participant during or after the completion of the project, for example claims that the consent was not informed or freely given or claims of personal injury (physical, psychological or social) as a result of participation in the project, the signed consent form and the information sheet together will be evidence of the process of informed consent. Like all research data and records they must be discoverable in the event of litigation.

3.2.3 Clinical Trials

There are specific recordkeeping requirements in relation to planning, conduct, analyses and assessment of clinical trials. These are outlined in the Therapeutic Goods Administration Note for Guidance on Good Clinical Practice (July 2000)[11] which is an internationally accepted standard for designing, conducting, recording and reporting of clinical trials.

Clinical trials require that records and data be retained for a minimum of fifteen (15) years from the date of termination of the study and preferably for the lifetime of the product.

3.2.4 Research and Data Collection in Indigenous Communities

Researchers should be aware of and sensitive to the particular issues raised when undertaking research and conducting research in indigenous communities. In addition to the *Joint NHMRC / AV-CC Statement and Guidelines on Research Practice* researchers should consult the NHMRC Values and Ethics: Guidelines for Ethical Conduct in Aboriginal and Torres Strait Islander Health Research[12] (June 2003).

Where research is funded by the AIATSIS (Australian Institute of Aboriginal and Torres Strait Islander Studies) researchers should consult the AIATSIS Guidelines[13].

3.2.5 Ethnographic Data
Special attention should be given to the long term storage of ethnographic data, recorded with speakers of small and potentially endangered languages. Such material should be properly described and archived so that

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[10] NHMRC Research Guidelines http://www.nhmrc.gov.au/publications/ethics/2007_humans/section2.htm
[11] Therapeutic Goods Administration: http://www.tga.health.gov.au/docs/html/ich13595.htm
[12] NHMRC Guidelines for ATSI Communities: http://www.nhmrc.gov.au/publications/synopses/e52syn.htm
[13] AIARSIS Guidelines: http://www.aiatsis.gov.au/research/ethics.html

members of the families and communities represented can have access to the material in the future. Consent to keep this data should be obtained from the appropriate people and their communities.

Researchers should investigate and utilise the repositories that exist in their field for the safe preservation of ethnographic data. *For example:* PARADISEC[14] (Pacific And Regional Archive for Digital Sources in Endangered Cultures) offers a repository for digital conservation and access for endangered materials from the Pacific region, defined broadly to include Oceania and East and Southeast Asia.

3.3   Confidentiality

Research data and records generated or compiled in research projects may be confidential or secret. Examples of confidential material include, but are not limited to:

- Research data and records which link the individual human participant with the study like signed consent forms, master lists of names and addresses or matching codes for a current study or similar listings which may be held for a period of time for a follow up study. Personal information is protected under Privacy legislation

- Data which is sensitive, for example: identified highly personal data; data which may be incriminating either to the provider of the data or to a third party; personal data which although not identified by name is in such a form (such as a case study or life history) that it may be able to identify the subject, and data, which even if not sensitive, may identify people (for example photographs, videotape, audiotape).

- Data that may cause harm to a third party should it be released.

- Information protected by a contract of secrecy or non-disclosure. The research may be considered 'commercially valuable' or 'trade secret' (see below for "Commercial in confidence". Similarly research conducted for Government or other third party, may also be under a contract of non-disclosure (confidentiality agreement).

Confidential research data and records should be stored securely in lockable filing cabinets or a lockable room with controlled access that comply with any agreements in place for the research activity. When confidential research data and records are stored electronically (for example on a personal computer) precautions should be taken to control access to the research data and records. Such precautions include password access and 'locking' datafiles. The signed consent forms for a particular project should be stored separately from the collected research data for that project. Refer to the University IT Security Policy[15] for information about secure storage and disposal of electronic data and records.

3.3.1   Commercial in Confidence
Research material of a sensitive or confidential nature which has possible patent, trademarks or Intellectual Property implications is considered confidential for commercial purposes. Information about relevant documents and contracts relating to these agreements should be stored with the data.

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[14] PARADISEC: http://paradisec.org.au/
[15] University IT Security Policy: http://www.its.unimelb.edu.au/__data/assets/pdf_file/0006/176649/itsecpol.pdf

3.3.2   *Breach of Confidentiality*[16]

Breach of confidentiality agreements and requirements must be reported to the Chief Investigator and Head of Department as soon as the knowledge of the breach occurs.

A breach is considered to have occurred where:
- Disclosure of research information with imposed confidentiality restrictions has occurred.
- A formal confidentiality or non-disclosure agreement has been broken
- Confidential data has entered the public domain, for example, published on web.

3.4   Patents

Where a patent has been granted all research data and records must be retained for the life of the patent (whether granted in Australia or overseas).

In the cases of commercially exploitable research, and research data and records that concern a patent application filed by the University, it is necessary for original research data to be retained at the University.

The originals (i.e. not copies) of all correspondence, deeds and contracts associated with the commercial exploitation of the patent must be returned to Melbourne Ventures.

It is often difficult during the research process to identify if a project will result in a patent. For this reason it is advisable in relevant disciplines to maintain research data and records as *if* the project will produce patentable outcomes. Researchers are required to disclose inventions[17] to the University. This will provide a means of assessing the potential value of the intellectual property.

Researchers should be aware that there are specific recordkeeping requirements for patent applications in the United States. The standard of proof (for non USA applicants) required for demonstrating 'first to invent' is the same as that required as if the invention had occurred in the USA. Therefore recordkeeping in relation to the making and documentation of inventions must comply with US standards. One means of achieving this is the maintenance of a data notebook in accordance with the Instructions for Keeping Experimental Laboratory Notebooks in Appendix D.

Contact: Melbourne Research Office and Melbourne Ventures are best placed to provide advice about more complex issues relating to patents and commercialisation. ://www.research.unimelb.edu.au/ip/contact/ip and ://www.melbourneventures.com/team/biosAssetManagement.html

3.5   Sponsored Research - Conditions of Award

Funding bodies may have specific requirements for retention of research data and records. Researchers should be aware of the conditions of any awards or contracts supporting their research.

Research funded by the ARC, for example, is subject to the ARC Conditions of Award[18]. Each scheme is bound by a Funding Contract/Agreement and includes clauses relating to the research data and records associated with the project or other activity. This information is detailed in those Contracts/Agreements under various

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[16] Fitzgerald, Pappalardo & Austin (2008) Practical Data Management: A Legal and Policy Guide, OAK Law Project, QUT ePrint: http://eprints.qut.edu.au/archive/00014923/01/Microsoft_Word_-_Practical_Data_Management_-_A_Legal_and_Policy_Guide_doc.pdf pp 20-22
[17] Invention Disclosure: http://www.research.unimelb.edu.au/ip/invention
[18] ARC Conditions of Award: http://www.arc.gov.au/applicants/fundingagreements.htm

headings including *Materials produced under this Agreement/Contract* and *Access to Premises and Records*. The ARC definition of 'material' includes documents, equipment, software, goods, information and data stored by any means. (Refer to the excerpt below from the 2011 ARC Grant Agreement.)

Contact: More information about grant, award and/or contract requirements are available from the Research Office ://www.research.unimelb.edu.au/rgc/contact/grants.

3.5.1   Discipline Specific Practices or Codes

Researchers should be aware of, and adopt, the relevant practices or codes within their research discipline that establish norms or best-practice for the retention of research data and records researchers. For example ARC Grants – Schedule C: Research Special Conditions

4.   Research Data Lifecycle and the Curation Continuum

The management of research data and records becomes more complex the longer it needs to be kept, particularly with a possible intention for re-use. Information collected about research data should occur early in a project's lifespan to ensure the ongoing management, access, and potential re-use of that data over time.

Research Data Lifecycle[19]: A dataset typically has a longer lifespan than the research project that creates it. A research project usually begins and ends with its funding. The reality is that researchers continue to work on the datasets generated/collected well after funding has ceased, and follow-up projects which continue to analyse or add to the datasets may subsequently be funded. UKDA (UK Data Archive) provide a useful model to illustrate a typical data lifecycle[20] which aligns quite well with the curation continuum.

| Data Creation | Data Analysis | End of Research | Preservation of Data | Publication of Data | Re-use of Data |

Figure 1: Simple linear representation of the Data Lifecycle (UK Data Archive)

Curation Continuum: Research data often begins in the private domain when created by a researcher. What is included here will vary markedly across researchers, across projects, and across disciplines. When data is at this stage, researchers typically manage their own data, with access limited to the immediate research team. When the research involves external collaborators increased access to data may occur and rules for sharing data need to be established. Once the project is completed, selected data and information around that data is generally made public via publication; and the data moves into the public domain.

Managing the transition of data along this continuum, from private to public domains, is at the centre of the need for good management of research data and records. The longer data is kept the more challenging its management can be. Section 7.1 and Appendix C in this document outline the minimum data retention periods required for compliance with various funding bodies (ranging from 5 years to perpetuity). It is noteworthy at this point to also highlight the increasing expectation that research data is made available beyond these minimum requirements to enable re-use by other researchers (within legal and ethical requirements). Open Access and Data Sharing is gaining momentum.

Contact: IMAS for more information and advice about data curation, -info@unimelb.edu.au

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[19] http://www.data-archive.ac.uk/sharing/lifecycle.asp
[20] http://www.data-archive.ac.uk/sharing/lifecycle.asp

5. Good Recordkeeping and Metadata

This section outlines how data should be managed, including the importance of selecting appropriate digital formats and building extensive metadata around the data to ensure that quality information about its provenance, legal framework, access rights, technical framework, publication and disposal, are collected early in a project and managed beyond the lifespan of the project which generated it.

5.1 Good Recordkeeping

Researchers are expected to keep clear and accurate records of the research methods and data sources, including any approvals granted, during and after the research process.

Good recordkeeping ensures that the data will be easier to locate, understand and judge. It enables the documentation of how data collections relate to results, which in turn support reproduction and validation of the results, and potentially, data re-use.

Data documentation should provide provenance and contextual information for the data so that it can be understood in the future. Recordkeeping requirements will vary depending on the discipline and type of research being conducted. Producing good documentation is easier if it is planned from the start of a project and considered throughout the lifecycle of the data.

5.1.1 File organisation

File naming for digital files: Digital file names can be important for identifying and finding digital files. You should develop file naming conventions early in a research project, and agree these with colleagues and collaborators before data is created.

Conventions will differ depending on the nature and size of a research project. In all cases, filenames should be unique, persistent and consistently applied, if they are to be useful for finding and retrieving data.

In deciding on digital file naming conventions, you should consider:

- Avoiding punctuation altogether, or using hyphens and underscores rather than spaces, especially where files may be accessed using a web browser
- Using lower-case characters only - some computer operating systems are case-sensitive.

File "properties" and internal document structures

Many software programs enable the addition of structured metadata in the form of "Properties". Common pieces of metadata that can be added include title, author, organisation, subjects and keywords, and additional comments.
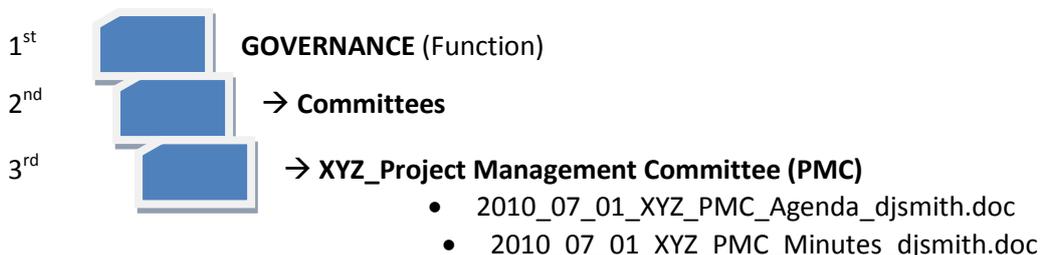
Researchers can also ensure that digital files are well-structured internally. By simply adding document titles, authors and their contact details, dates, version control information, and column and row labels for tables and spreadsheets, you greatly increase the ability of your research data to be found, managed and interpreted over time.

5.1.2   Classification systems

The University of Melbourne has developed a common language or Enterprise Classification Scheme. The Enterprise Classification Scheme aims to standardise records' structures and description, by contextualising the records within the performance of University functions and activities. Under this model, records are classified according to what function / activity of the University they document, and records are saved within a three-tier structure.

The classification provides common language terms for the first two (context) levels. You are then free to create content folders and documents at the third level, in accordance with the project's document and folder naming standards.

> E.g. Project XYZ – Management Committee filing

1st   **GOVERNANCE** (Function)

2nd   → **Committees**

3rd   → **XYZ_Project Management Committee (PMC)**
- 2010_07_01_XYZ_PMC_Agenda_djsmith.doc
- 2010_07_01_XYZ_PMC_Minutes_djsmith.doc

This system will not work for everyone. The important take home is that there is consistency of categories and naming conventions over time. Following an established system means you do not have to re-invent the wheel. Adapt the ECS to suit your internal requirements and this will means that others will more readily follow the system.

> **Contact:** If you need more information please contact the IMAS: imas-info@unimelb.edu.au or University Records: ://www.unimelb.edu.au/records/contacts.html

5.2   Metadata[21]

An important component of research recordkeeping and documentation is the management of different types of metadata associated with research data and records.

Metadata is structured information associated with an object for purposes of discovery, description, use, management and preservation (NISO, 2007). Metadata is data about data; information about information. Metadata adds value to documents or images. For scientific data, metadata is even more important because it provides the context needed to make sense of what would otherwise be a collection of numbers.

Collection level metadata is used to describe an aggregation of objects such as the photo album (or CD-ROM or file folder) that contains a group of photographs: the size of the collection, who took the photographs (there may be more than one person), the time period over which the photographs were taken, and so on. Some of these attributes, such as 'Title' may be the same as those used to describe an individual photograph.

There are many labels used for metadata but essentially there are three main types of metadata based on core functions that the information relates to:

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[21] The Metadata section of this document has been adapted from a number of sources including QUT Research Data Management Guidelines (2010), NISO (2007) A Framework of Guidance for Building Good Digital Collections, NISO Press, and NISO (2004) Understanding Metadata, NISO Press,

A. **Descriptive metadata** – this describes a resource in sufficient detail to uniquely identify it and enable its retrieval/discovery. It ensures that an object or group of objects can be distinguished from one another and which will maintain meaning over time. Examples include author, title, and project.

B. **Structural metadata** – this provides information about relationships within and among objects in a resource. It helps users navigate complex objects while also understanding how objects relate to each other and other entities. Examples include how pages are ordered in chapters, how images are related to text or other data.

C. **Administrative metadata** – This provides information relating to the provenance and management of the resource including when and how it was created, file formats, technical details, and access rights. This information helps data managers to keep track of objects in a resource. Administrative metadata also includes:

- *Rights Management* information which manages legal issues such as intellectual property rights, privacy and confidentiality;

- *Preservation metadata* – which includes the information required to archive and preserve the resource.

The primary goal for collecting and keeping the rich metadata about the materials produced by researchers is to ensure that research outputs can be understand by individuals outside the research project group. Without this it would not be possible to ensure the long term management of research material beyond the life of a research project/activity.

5.2.1   Metadata Standards

Metadata can be generated manually, or it can be created automatically. For example, a camera can record the time and date, the type of camera, exposure times, file format, and so on, and can attach this metadata to the image file automatically. The camera cannot tell you who the photographer is, or what the subject of the photograph is. This information must be provided by a human. There is a significant cost associated with assigning metadata manually and little cost associated with collecting it automatically, once the processes have been set up.

Standardised vocabularies and ontologies describe ways in which terms are standardised and grouped to provide consistency when ascribing metadata. This will help to make sure that preferred terms (such as theses as opposed to 'dissertation', or 'directory' rather than 'folder') are used.

Once you start combining those indexes, lists, or databases, you need to have some agreed standards in place to allow for the interchange of data. There are many different standards for metadata, some of which are discipline-specific. Computers can then retrieve metadata from different sources (a process known as harvesting) and combine it automatically to create bigger collections of metadata that make for better discovery services. Examples include services such as Picture Australia (a project of the National Library of Australia).

5.2.2   General and discipline based standards

Different disciplines develop and adopt various metadata standards and/or practices for the management of their research data and materials. The extent to which any single discipline might adopt these standards is variable. Some examples are listed below but there are many more.

- **Dublin Core:** Dublin Core is widely used to describe resources including digital objects. More information: http://www.dublincore.org/

- **Data Documentation Initiative (DDI):** The Data Documentation Initiative[22] (DDI) is an XML metadata standard that supports the entire life cycle of social science datasets. More Information: http://www.ddialliance.org/

- **Geospatial metadata**
  http://www.anzlic.org.au/infrastructure_metadata.html#ch3 ;
  http://asdd.ga.gov.au/asdd/tech/requirements.html
  http://www.fgdc.gov/metadata/

Contact: IMAS for more information about Metadata Standards imas-info@unimelb.edu.au
More information: National Archives of Australia: http://www.naa.gov.au/records-management/create-capture-describe/describe/rkms/index.aspx
MIT, USA: http://libraries.mit.edu/guides/subjects/metadata/

5.3   Controlled vocabularies

As mentioned above, controlled vocabularies are another form of metadata that ensures shared understanding of the terminologies used in taxonomies and classifications. An example of this is the University's Enterprise Classification System described in 5.1.2 of this document. Various disciplines have established communities to build standards around subject headings, thesauri, taxonomies or ontologies that are used to organize information and data. Using established vocabularies promotes interoperability, discovery and re-use of data. Examples include METS (Metadata Encoding and Transmission Standard) used by libraries for cataloguing objects, and EAC (Encoded Archival Context) used by archivists.

5.4   Data Dictionaries

A data dictionary is essentially a repository of information about data including meaning, relationships to other data, origin, usage, and format. It is a metadata repository which can operate as middleware that communicates with one or more databases. Though this data may be stored within a database, it is advisable to also maintain this documentation separately from the data in an open standard format to ensure long term access to this critical information and to minimize risk of loss.

5.5   Identifiers

An identifier is a code or name for an object (digital and non-digital). It can become an important component of research data and records documentation and metadata. Ideally identifiers should be unique and persistent over time. A number of services exist for the generation of identifiers.

Examples of identifiers include:
  A. Handles – a number/code that is created when an item is deposited into University of Melbourne Repository (UMER) which is linked to a persistent URL.
  B. International Standard Book Numbers (ISBN) for published books
  C. Digital Object Identifiers (DOIs) for electronically published journal articles

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[22] More information about the DDI standard can be accessed at: http://www.ddialliance.org/

D. Universal Resource Locators (URLs) or website addresses (though these will not persist over time if the website ceases to exist).

The Australian National Data Service provides one of these services for research datasets and collections[23].

6. Storage of Research Data and Records

Researchers must ensure that materials generated and collected from their research activity, regardless of format, are stored securely in a durable and accessible form and stored in a manner that ensures its authenticity and integrity as well as meeting all legal and confidentiality requirements.

Storage choices must ensure minimal risk of loss.

6.1 Non-Digital data and records storage

Wherever possible non-digital research data and records must be retained securely within the department: in the researcher's own office or the laboratory in which they were generated. Where this data is confidential it is important to secure appropriately in compliance with ethical and legal requirements.

At the conclusion of the project, research data and records should be correspondingly boxed and labeled with the researcher's name, project title, date of publication and number of boxes e.g. Box 1 of 10. Appropriate documentation about associated digital data and its location should also be recorded with the data. When research data and records are relocated or destroyed this action must be recorded in the departmental or central data register. Records must be adequate to establish if data and records have been relocated or destroyed, relevant dates, and the authority on which this action was taken. Proformas for documenting these data movements are provided in Appendix C.

Where non-digital data relates to multiple investigators or multiple projects it may be appropriate to establish a departmental master file identifying the projects, names, date and location(s) of data and records for the whole study, including associated digital data.

If non-digital research data and records need to be stored elsewhere (e.g. because of confidentiality or storage requirements), the relevant department (and student's supervisor, if relevant) must be advised of the location and access made available if required. The department should register the location of these data and records in the departmental register or central register of research data and records.

Researchers may also decide to digitise components of their research data and records. In some cases, and subject to the digitisation process itself, a digitised version may replace the original document.

Contact: IMAS for more information and advice about the digitisation, management and archiving of non-digital research data and records: imas-info@unimelb.edu.au

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[23] The ANDS 'Identify My Data' Service enables researchers to persistently identify their data. More information can be obtained at: http://www.ands.org.au/services/identify-my-data.html

6.2   Digital Research Data Storage

A decision about digital storage requires a good knowledge about durable digital formats, secure and reliable storage platforms, and data access rights administration. The following information will provide some of the knowledge required to make these decisions but you are strongly encouraged to seek advice from an IT specialist.

6.2.1   Durable Data Formats[24]

Prior to planning for the storage of digital objects, important decisions need to be made about the formats that these objects are in and the longevity of these formats.

A **file format** describes the way information is organised in a computer file. Different file formats exist for digital objects in the form of documents, images, sound files, and video. There are also many different file formats for research data sets.

The formats you elect to use for digital data collected/created during your research project will impact on the usability of that material over time. As digital information is designed to be interpreted by software on machines, if the software and/or hardware required to read this data is no longer available, your data becomes inaccessible (format obsolescence). The longer data needs to be kept, the greater the risk of this happening to your data. Keeping data longer for potential re-use into the future means that more thought is needed early about how the digital formats will survive the test of time. Many repositories have policies around the range of formats supported for data deposited. It is important to check those relevant to your discipline(s).

In principle, file formats for long-term access will be accessible over time and are generally non-proprietary, open, have a documented standard, are unencrypted and uncompressed, and are in common usage by a research community.

Planning implications: File format decisions should ideally be made *before* you start data collection. Migrating data from an unsuitable format to a better one is usually difficult, expensive and may in some cases be impossible, but it may be necessary as part of the ongoing curation of a long-lived data collection.

More information:
- Australian National Data Service Guides: http://www.ands.org.au/guides/file-formats-awareness.html and http://www.ands.org.au/guides/file-formats-working.html
- Preserving Access to Digital Information (PADI): gateway to international digital preservation resources and to ICADS (IFLA-CDNL Alliance for Digital Strategies) http://www.nla.gov.au/padi/index.html

6.2.2   Central Digital Research Data Storage Services on Request

SToR is centrally supported networked storage. It is the recommended option for storage of the research data and records of The University of Melbourne. This storage is managed by IT experts, has controlled access and ensures regular back-up, including disaster management.

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[24] Information has been taken from ANDS Guide: http://www.ands.org.au/guides/file-formats-working.html

6.2.3   Locally managed research data storage

Researchers often use a variety of ways to manage the storage of digital objects. Risks associated with some commonly used methods can be quite high and should be avoided for master copies of data. High risk options include:

- **Removable media**
  This includes USB drives, memory cards, DVDs to mention a few. These methods are convenient and inexpensive but they are also easy to misplace and corrupt. Security is poor and is not recommended for storage of sensitive and confidential materials. Where this does occur it should be encrypted or password protected.

- **Personal computer hard drives**
  This is not recommended for the master copy of your data unless it is networked and regularly backed up. In the case of notebooks there is a high risk of loss through misadventure. The life of personal computers is generally only 3-4 years which adds further risk against sustainable storage of important data and records which need to be stored for 5+ years post publication.

6.2.4   Externally managed research data storage

It is important that any storage solutions used to manage research data storage comply with University policies and procedures. Please contact ITS Research Services for advice before entering binding agreements with external vendors.

7.   Registration of Research Data and Records

It is a requirement that the University maintain records of where research data and records are stored. Heads of Department are required to maintain a record of research materials stored within their department. A Central Research Data Registry will be available in 2011 for managing these records, alleviating the need to maintain separate departmental records. This registry will harvest existing administrative information already managed centrally to minimise duplication of effort and enabling easy registration and monitoring of this information.

Departments who currently manage their own register of research data and records are advised to use the framework outlined in Appendix C to ensure that all the information required is collected and maintained.

7.1   Period of Retention of Data and Records

Research data and records should be maintained for as long as they are of continuing value to the researcher and as long as specified by ethics approval process, patent law, legislative and other regulatory requirements. If any of these requirements appear to contradict each other when related to your research data and records, contact the Research Office for legal advice. Retention periods for research data and records are generally

based on those established by external organisations, such as the NHMRC, ARC and PROV, and may be amended from time to time. Appendix E provides the current retention recommendations.

- The minimum retention period for research data and records is five (5) years from the date of any publication or public release of the work of the research.

- Clinical trials require that records and data be retained for a minimum of fifteen (15) years from the date of termination of the study and preferably for the lifetime of the product.

- The Australian Psychological Society advises members that files/records of adult clients should be maintained for a minimum period of seven (7) years from the last date upon which the client received services. In the case of children the records should be kept for a minimum period of seven (7) years after the child reaches the age of 18.

Funding bodies may have specific requirements for the retention of research data and records.

Where there are known disciplinary practices or codes establishing norms for retention of research data and records these should be adopted unless there is a conflict with other codes.

Contacts:
- IMAS for general assistance with assessment of research assets and advice: imas-inf@unimelb.edu.au
- Research Office for legal advice as required.
- University Records for more information about disposal schedule and compliance obligations.

More information:
- University Records can advise on records disposal schedules and procedures: http://www.unimelb.edu.au/records/corporate/disposal_advice_service.html

7.1.1 Archival Value

In many instances, departments and researchers will resolve to retain research data and records for a longer period than the minimum requirement. This is permissible unless it contravenes requirements of ethics approval process, copyright or other legal limitations (e.g. privacy). Ethics clearance to keep data longer than the original approval period requires a new application to the Ethics Committee.

Consideration should be given to the long term preservation of research data and records of archival value. For example data and records that:
- document significant projects that made a major contribution to research;
- document projects that were controversial, subject to extensive debate or aroused wide interest;
- document projects that involve the use of major new or innovative techniques;
- document "first of a kind" process or product or significantly improve on an existing product or application;
- are the work of an eminent researcher such as a widely acknowledged authority in their field or a person who has in some other way achieved prominence;
- have value for research in other disciplines e.g. history and philosophy of science, history and sociology.

Where research data and records are thought to be of archival value the researcher should consider depositing the research data and records in an appropriate archives institution. The Conditions of Award for ARC Grants programs contains specific references to the deposit of data, specimens or samples within

appropriate archive for secondary use by other investigators. Refer to item 20.3 in the previous section for an example from ARC Discovery Grants.

Contact:
- Further advice on archival value and archival institutions can be obtained from [The University of Melbourne Archives](#) and [University Records](#).
- Contact the Melbourne Copyright Office for more information about the possible copyright limitations associated with archiving the research data: http://www.unimelb.edu.au/copyright/contact.html

7.1.2 Preservation

Merely storing data after project completion is no longer sufficient, long term preservation along with ease of accessibility needs to be planned and implemented.

Contact: IMAS for information and referral to the best service to support the preservation of your data: imas-info@unimelb.edu.au

7.2 Removal or Movement of Data and Records

The original research data and records must be kept at the University, normally in the department where the research was conducted or in central storage. This is because the University may need to respond to allegations of falsification of data. It is also required in all cases where the University has filed a patent application to protect commercially exploitable research outcomes.

In the event of the researcher leaving the University, they may negotiate with the Head of Department to take copies of their research data and records for their own use, but **original data and records are to remain in the University**.

If the researcher moves to another department within the University they may make a request to relocate the original data and records to their new department. In such cases the Head of the original department is required to authorise the relocation. All details of the new location and the date when the records were moved should be recorded in the Central Research Data Registry or the Departmental Register.

Refer **Appendix C** for more information.

7.3 Destruction of Records[25]

The destruction of research data and records should be authorised by the Head of Department on recommendation of the researcher. A record of the recommendation and approval must be maintained in a departmental register or in the Central University of Melbourne Research Data Registry. Refer to the proforma 'Register of Research Data & Records Stored in Department' (**Appendix C** of these guidelines). This form may be used or adapted as required.

If after five years (or required period as per schedule) from the completion of the research project the research has not been published or otherwise publicly disseminated for any purpose to any other party, and

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[25] Refer to Appendix E for an excerpt from the University of Melbourne Disposal Schedule as it relates to research data and records.

the researcher declares an intention not to publish the data, the research data and records may be recommended for destruction.

Research data and records collected, used and maintained by student researchers can be destroyed five years from the point of thesis submission post examination, provided there is no continuing value to the supervising staff member, department or University. If publication, or public release, of a work of research occurs after the thesis submission the research data and records should be retained for five years after the publication, or public release, of the work of research. The destruction of student researcher data and records left in the department should be authorised by the Head of Department and the signed record maintained in the department or on the Central Register.

When confidential research data and records are destroyed it should be done in such a way as to ensure complete destruction of the information. Confidential research data and records in paper format should be shredded. Confidential research data and records in electronic format should be destroyed by reformatting or rewriting. 'Delete' instructions are not sufficient to ensure that all systems pointers to the data incorporated in the system software have also been destroyed. For audio-visual tapes a 'magnetic field bulk eraser' should be used to degauss the tape (i.e. remove the recording). At the time of destroying confidential data and records, researchers should ensure that they employ the most effective method since this may change over time with technological advances. Again, this destruction must be recorded in the Departmental or Central Research Data Registry.

Contact: University Records Disposal Advice Service for more information about the disposal of research records and data: http://www.unimelb.edu.au/records/corporate/disposal_advice_service.html

8. Appendices

A. Local Rules and Guidelines for the Management of Research Data and Records

B. Research Data Management Planning

C. Research Data Registration, Movement & Disposal (Including forms and proformas)

D. Laboratory Notebooks

E. Research Data And Records Retention And Disposal

A. Local Rules for the Management of Research Data and Records

The following guide has been drafted to assist organisational units within the University of Melbourne to develop a local procedure for the implementation of the University's Policy for the Management of Research Data and Records. It is not prescriptive and should be adapted to meet local requirements. An organisational unit includes groups that are required to manage the research data and records associated with research activities, including that of students. Examples include: Faculty, School, Graduate School, Department, and Research Centre/Institute.

Local rules for the Management of Research Data and Records at the <insert name of Faculty/School/Department/Research Unit>

1. Purpose

The purpose of this document is to provide <insert Unit name> staff and students engaged in research activity with information about the local rules and procedures for implementing the University of Melbourne Policy for the Management of Research Data and Records[26] (RDR). This information outlines local rules for meeting researcher responsibilities with respect to the storage, retention and disposal of data and records associated with, and arising from, their research activities.

2. Scope

All <insert Unit name> Students, Staff or Honorary Staff involved in research.

3. Legal framework

Please refer to the University RDR Policy for the relevant legislation that may relate to your research data and records and make yourself familiar with the requirements of this legislation. If unsure what these requirements may entail contact <insert a local contact in your Unit> or Melbourne Research for more information.

4. Policy statement

The University RDR Policy is intended to ensure that research data and records created as part of the research process are:

- accurate, complete, authentic and reliable;
- identifiable, retrievable and available when needed;
- secure;
- retained for a minimum of five years[27] after publication or public release of the work of research, and
- comply with legal obligations and the rules of funding bodies.

5. Research Data & Records Administration

What procedures and processes are in place for the administration of research data and records in your Unit?

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[26] This document should be read in conjunction with the University Policy for the Management of Research Data and Records: http://www.research.unimelb.edu.au/integrity/conduct/data

[27] Subject to the nature of the research activity or the data, there may be requirements to retain research data or records for longer periods. Please refer to the Research Data and Records Retention and Disposal Schedule in Appendix E for details.

How are researchers informed and guided in using this procedures and processes?

For example:
- Is there any registration of research projects (staff and student)?
  - Grant applications – and transition to actual project when successful
  - Ethics applications – and transition to actual project when approved and/or funded
- Is there any registration of research data stored within your Unit – including its format, location, movement, associated publications? What are the trigger points for gathering this information? E.g. publication.
- What happens to research data and records when a student project is completed?
- What happens to research data and records when a researcher leaves this Unit or the University?

6. **Research Data & Records Storage**

What services are available for the storage of digital and non-digital research data and records for researchers in your Unit?

How do researchers access these services?

Do researchers use other storage services? E.g. Central ITS Storage, External provider, Discipline based repository, other? How is information about these services managed by your Unit?

7. **Publication of Research Activity associated with Research Data and Records**

How does your Unit manage the information about publications associated its research activities?
- Are all staff and student publications recorded centrally?
- Are research datasets associated with publications deposited or recorded centrally (particularly their location) when manuscript is submitted for publication or examination (in case of student research) or when it has been accepted for publication?
- Are pre-prints lodged in the institutional repository?

How are researchers informed and guided to follow these procedures and processes?

8. **Research Data Access & Re-use**

How do researchers manage access to their research data? Are there any processes which manage the access and authorisation rights and requirements associated with research datasets stored in your Unit?

What is the position about the re-use of research data in your Unit? How is this supported by central processes and documentation? How are ethical requirements managed where researchers allow for its re-use by other researchers (internal and external to the University)?

9. **Research Data & Records Retention requirements**

How does your Unit support researchers with information about the retention requirements of their research data and records?

How do researchers access this information currently?

10. **Research Data & Records Registration, Movement and Destruction**

How does your Unit record the transitions of research data and records?

How do researchers access this information currently?

11. Research Data & Records Archiving and Preservation

How does your Unit support researchers with information about the long term archiving and preservation of their research data and records?

How are researchers supported in assessing the long term value of their research datasets and collections? This appraisal is an informed opinion based on such reasoning as:

- How can the data be re-used (subject to ethical guidelines)?
- Is it significant new knowledge?
- Does it have historical value?

How do researchers access this information currently?

Contact: IMAS for assistance with the development of these local rules: imas-info@unimelb.edu.au

B: Research Data Management Planning

It is anticipated that the ARC and NHMRC will increasingly require grant holders to produce data management plans; in line with practices emerging from the UK and US. For this reason we recommend that researchers at the University of Melbourne, where practicable, also follow this practice as it reflects good research practice.

A research Data Management Plan (DMP) documents key information about a research project including what research data will be created, the policies that will govern how the data may be used, located and managed for the period of the project and the entire retention period for that data. The DMP will also outline what resources will be used to manage the data and the associated information about the data and its physical location within the University. The custodian of this information and data must also be included with delegations clearly identified.

The following is not prescriptive but provides details of some of the key elements that may be important for a data management plan about your project. References at the end of the section will point you to resources and help.

Data Management Plan

1. **General Information**

    1.1. **Description and context of Project** – includes title, summary, collaborators, funding, duration, partners, details of external policies that may impact (e.g., funding bodies, research group) and glossary of terms (where appropriate).

    1.2. **Information about the Data** – what is the 'data' for this research activity? Include data description, type, and original data to be created where this has occurred. If existing data has been used provide details. If relevant, identify relationship between new datasets and existing data. What contextual information will be needed to make this data meaningful for the required retention period? How will this metadata and documentation be captured and maintained?

2. **Data Administration**

    2.1. **Legal, rights, ethical and funding records** – identification of who owns intellectual property (IP) and copyright to the data and records; any licensing arrangements in place (attribution, creative commons); ethical and privacy issues and details of management of these; ethics applications and approval documentation, confidentiality contracts, or any other contractual and third party agreements associated with the project and data. If your data has any commercial value document agreements and procedures for managing and protecting this data.

    2.2. **Access to data, data sharing and data re-use records** – documentation about who will have access to data, how access is gained and details of permissions and restrictions; identify embargo periods; document detailed security arrangements (e.g. encryption, secured physical storage) for confidential and/or sensitive data and records.

    2.3. **Data Formats and Standards records** – document the data types, formats for each type and associated standards where appropriate. Identify the technologies required to access these formats and if Open Source, have widespread usage or are proprietary.

2.4. **Retention requirements for the data and records.** Document the retention requirements for the different components of data and records including delegations and procedures for disposal (refer to research data and records disposal schedules – Class 12.6

2.5. **Data Management and Storage**

2.5.1. **Short-term planning** – This refers to managing research records and data for the life of the project. Identify anticipated data volumes, where and how data (digital and analogue) will be stored; if digital, back up protocols; if confidential – security protocols for data (who and how). You are in the best position to know what needs to be recorded here as you are the expert of your data and records – what would you need to defend your research to others?

Tip: If you were the only person who knows and understands this data and you could no longer be contacted – what would someone else (colleague in your discipline) need to know about these research records and data to decipher meaning and content?

2.5.2. **Long-term planning** – This refers to the management of records and data post-publication, at the conclusion of the project or other management transition point, e.g. publication of research. Identify the Custodian of the data and records that will be retained. Document the long term strategy for maintaining and archiving the data and records that are to be retained, including the resources that will be allocated to this by Head of Department or Central resources (Library and/or ITS).

3. **Registration of Data, Delegations and authorisations** – the Head of Department (HOD) will approve the registration of this plan and associated data and records that will be/have been generated during the project. The HOD will also authorise this data management plan and ensure that appropriate storage resources are available for its implementation. If Central resources are required for the implementation of the plan then sign off from a resource manager should also be included.

Data Management Checklist

This is a separate document that can be used to assist in building a data management plan for your research project. It forms part of the research data management tool box.

Contact: IMAS imas-info@unimelb.edu.au for assistance with building a data management plan.

C: Research Data Registration, Movement & Disposal

The University is developing a Central Research Data Registry which will be available in 2011 for the registration of research data held Faculties, Departments and by individual researchers. This registry will harvest existing administrative information already managed centrally to minimise duplication of effort.

Departments who currently manage their own register of research data and records are advised to use the following framework to ensure that all the information required in such a record is collected and maintained.

For advice or information about the appropriate completion of any of the forms and checklists in Appendix C:

University Records of Policy: www.unimelb.edu.au/records

University Library – IMAS - Research Data Services: www.imas.unimelb.edu.au

University Archives: http://www.lib.unimelb.edu.au/collections/archives/index.html

Melbourne Research: http://www.research.unimelb.edu.au/home

ITS - Research Services: http://www.its.unimelb.edu.au/about/research

Register of Research Data & Records Stored in Department

Department of [insert department name]

Register of Research Data & Records Stored in Department

Identification number: **Year:**

(All stored data and records associated with this project should be labelled with this unique identification number and the year stored.)

Name of Principal Investigator (academic staff member or student researcher):

Names of all other researcher/s (include student researchers where relevant):

Name of supervisor (where applicable, ie. student researcher project):

Project title and description (include sufficient detail to identify the type and nature of the research e.g. animal or human research, classroom research):

Funding body/bodies (if applicable):

Date project commenced:

Date project completed or thesis submitted:

Description of data/records and format: *Include sufficient detail in this table to ensure that the full set of materials can be identified and retrieved. Format of data may include computer printouts, laboratory notebooks, files, maps, electronic datafiles, photographs, video and audio recordings, charts, models, disks, magnetic tapes.*

Description of data/records and format	Quantity	Location	Date Stored	Restricted / Confidential*
				☐
				☐

Detail any access /confidentiality restrictions:

Retention period – Date for review:

Date of publication or public release (if applicable):

Degree for which thesis was submitted and date of submission (if applicable):

Relocation of Data and Records Form

Original data and records may be relocated to another department within the University, but may not be removed from the University.

I request approval to relocate the research data and records for this project, currently held in the department, to:

(Give full description of location, i.e. building and room number or departmental office storage area location)

Reason for relocation:

Collaborators have been advised of the relocation.

Principal Investigator: (signature)   **Date:**

Approval to relocate data and records

Head of Department: (signature)   **Date:**

Date removed:

University Retention Schedule for Research Records

The following checklist is provided to help you make the correct decision about the disposal of research data and records.

Disposal of Research Data and Records Approval Checklist:

Complete all items in the checklist. If the response to any item is "No", the issue must be resolved before any data and records are destroyed.

	Yes	No	N/A

5 years have passed since the publication, or public release, of the work of research
         OR
5 years have passed since completion of the research project and there is no intention to publish, or publicly release, the work of research.
         OR
5 years have passed since the thesis was submitted (in case of project by student researcher) and there is no intention to publish, or publicly release, the work of research.			

Any additional time intervals established by external organizations for the retention of this type of data and records eg. Clinical trials, 15 years (NHMRC); psychological records, 7 years (APS), have passed. (refer Appendix E)			
All specific requirements of funding bodies have been met.			
Archival value of records has been considered and appropriate actions taken to ensure the retention of potentially valuable materials. (Identify who was consulted and decisions made.)			
Any discipline specific codes or best-practices for the retention of data and records in the field of this research project have been adopted.			
Collaborators have been consulted.			
Confidential data and records will be destroyed by appropriate means and confidentiality protected throughout the disposal process.			

I recommend that the research data and records for this project, held in the department, be destroyed.

Principal Investigator: (signature)   **Date:**

Approval to destroy data and records:

Head of Department: (signature)   **Date:**

Date destroyed:

D: Laboratory Notebooks

Laboratory notebooks being the prime record of scientific research should document all aspects of the research process from the conceptualisation of a hypothesis or research problem, through to the formulations of research methodologies, the design of equipment and techniques used, the conduct of experiments and observational data.

A laboratory notebook should be kept for all scientific projects.

Separate notebooks must be kept for each project. This is particularly important when undertaking contract research simultaneously with publicly-funded research (eg. NHMRC or ARC grants) in the same or similar subject area to ensure that intellectual property rights remain clear.

The University publishes Laboratory Notebooks for use by researchers. These can be purchased at the University Bookshop.

Guidelines for Using the Laboratory Notebook

The laboratory notebook is the primary record of your research undertaken at The University of Melbourne. In relation to patents for inventions, the information recorded in the notebook may be critical for confirming inventorship and ownership details as well as dates of invention. The laboratory notebook may also provide information to assist with meeting certain obligations of research grants or contracts. Guidelines for using the laboratory notebook are as follows:

Making Entries

- All entries in the notebook should be written legibly in permanent ink (not pencil). Ensure that the same pen is used throughout each individual day. It is important that all entries can be easily photocopied or digitally imaged so it is preferable to use a pen having an ink colour that allows good quality reproduction (e.g. black ink).

- Each experiment should be recorded in detail at the time it is being conducted. The experimental record should be dated and include a title, a statement summarising the purpose of the experiment, a description of the materials and methods, the results of the experiment (whether successful or not) and a conclusion. The experimental record should be written in past tense.

- All non-handwritten results (computer print-outs, digital images, etc) should be signed and dated and securely attached to the notebook. If it is impractical to attach non-handwritten results, these results should be stored in a secure location and a cross reference to these results and storage location should be included in the experimental record.
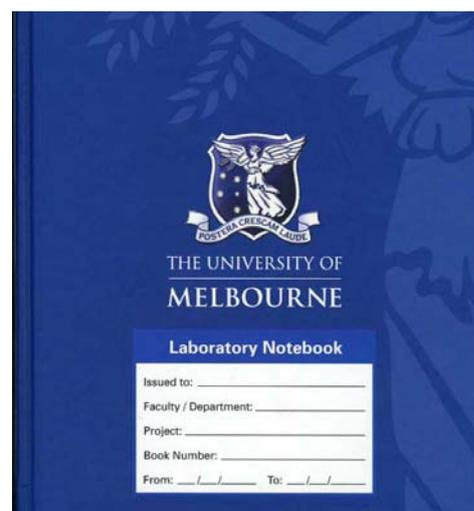
- All non-handwritten results stored in electronic form should be backed-up and write-protected.

- All entries in the notebook should be made in chronological order and each new day of experimentation should start on a new page. No entries in the notebook should be back-dated.

Title of Experiment		Continued From	Continued On	Page **5**
		Page #	Page #	Date
		Book #	Book #	___ / ___ / ___

- Any non-standard terms and abbreviations used when recording an experiment should be defined in the 'Glossary of Non-Standard Terms'.

Glossary of Non-Standard Terms	
Term	Definition

- Avoid using language when recording experiments that relates to the patentability of inventions. For example, do not describe the results of experiments as "obvious", "expected" or "unpatentable".

- If past or future experiments are discussed with laboratory colleagues, collaborators or any others, record any relevant suggestions or comments and the names of the people who made the suggestions or comments.

- If results are omitted from a previous experiment or aren't available until after an experiment is completed, and subsequent entries have since been made, enter these results in date order in the notebook and cross reference the entry back to the earlier entry.

- Do not leave large blank portions on finished pages or skip pages. A line should be drawn through any unused portion of a page.

- In the event you stop working on a particular project for sometime and then return to it at a later date, state the reasons for this break. For example, a new laboratory instrument or reagent may have been required or you may have been on vacation.

Signing and Witnessing

- The person making entries in the notebook should sign and date each completed page immediately when a new page is started, or, the last page on which an entry was made if it is the end of the day.

Name of Person Conducting Experiment		First Witness of Experiment		Second Witness of Experiment	
Signature	Date	Signature	Date	Signature	Date
	__ / __ / __		__ / __ / __		__ / __ / __

Commercial-In-Confidence

- All entries should be regularly witnessed by at least one, or preferably two, people who are not co-creators of any invention related to the experiments but who have sufficient technical knowledge to understand and confirm the records being witnessed. The witness should carefully review the entries to be witnessed and sign and date the appropriate page.

- Signatures in the notebook should not be back-dated.

- Any person that signs the notebook should record an example of their signature on the 'Sample Signatures' page.

Sample Signatures

Printed Name	Signature
Printed Name	Signature
Printed Name	Signature

Errors and   **Amendments**

- Do not erase or cover errors with correction fluid. All errors must remain legible so it is preferable to simply "line-out" errors (e.g. ~~error~~). If the reason for a correction is not obvious state the reason for correcting the error and where possible the correction should be dated, signed and witnessed.

- Entries in the notebook should not be altered after the page an entry is on has been signed and dated by the person making the entry and witnessed. If an error is identified in an earlier entry, line out this entry and enter the correction in date order in the notebook and cross reference the correction back to the incorrect entry.

- Do not remove pages, or parts of pages, from the notebook.

Multiple Notebooks

- If multiple notebooks are used for an individual research project, the notebooks should be sequentially numbered and the period of time each notebook relates to should be recorded.

- A separate notebook should be used for each different research project being conducted.

Completed Notebooks and Storage

- Once a notebook is completed, experimental records should be summarised in the 'Table of Contents'.

- Notebooks should be stored in a secure location for as long as the entries may need to be verified. In cases where a relevant patent exists, the notebooks may need to be stored for the term of the patent e.g. 20 years.

- The notebook remains the property of The University of Melbourne and the information it contains is confidential.

Contact: Melbourne Ventures Pty Ltd for more information about laboratory notebook practice at The University of Melbourne. Ph: 8344 3190 or the Melbourne Research Office Ph: 8344 2000.

E: Research Data and Records Retention and Disposal at the University of Melbourne

Master copy held at: http://www.unimelb.edu.au/records/corporate/disposal.html

<table>
<tr>
<td colspan="5">RESEARCH DATA AND RECORDS RETENTION AND DISPOSAL
Extract from the University of Melbourne Records Retention and Disposal Authority Current at 10 June 2010</td>
</tr>
<tr>
<td rowspan="2">CLASS NO.</td>
<td rowspan="2">DESCRIPTION</td>
<td colspan="2">DISPOSAL ACTION</td>
<td rowspan="2">PRIME SOURCE</td>
</tr>
<tr>
<td>RETENTION</td>
<td>CUSTODY</td>
</tr>
<tr>
<td>0600/2550</td>
<td>DATA ADMINISTRATION
The activities associated with the collection, structuring, storage and management of original data.
Includes Data Sheets, Data Migration, Experimental Results.
Use EXPERIMENTATION when making arrangements to conduct research experiments themselves.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0600/2550/1</td>
<td>Collection and analysis of research data not involving clinical trials.

Includes experimental results/readings, Photographs and other recordings of experimental outcomes (i.e. audiotape, videotape, databases, films), Data sheets, Observations, Questionnaires, Test Responses, Field note books, Diagrams, Graphs, Models, Conclusions, Laboratory note books</td>
<td>Temporary

Destroy 5 years after date of publication or public release of the work of the research.</td>
<td>Hold in work unit after administrative use concluded, pending destruction as recommended by Chief Investigator.

Electronic records should be maintained in readable format pending destruction.</td>
<td>Faculties, Academic Departments & Schools</td>
</tr>
</table>

E: Research Data and Records Retention and Disposal at the University of Melbourne

Master copy held at: http://www.unimelb.edu.au/records/corporate/disposal.html

<table>
<tr><td colspan="5">RESEARCH DATA AND RECORDS RETENTION AND DISPOSAL
Extract from the University of Melbourne Records Retention and Disposal Authority Current at 10 June 2010</td></tr>
<tr><td rowspan="2">CLASS NO.</td><td rowspan="2">DESCRIPTION</td><td colspan="2">DISPOSAL ACTION</td><td rowspan="2">PRIME SOURCE</td></tr>
<tr><td>RETENTION</td><td>CUSTODY</td></tr>
<tr>
<td>0600/2550/2</td>
<td>Collection and analysis of research data involving clinical trials, where the product being trialled did not end up going into production.

Includes experimental results/readings, Photographs and other recordings of experimental outcomes (i.e. audiotape, videotape, databases, films), Data sheets, Observations, Questionnaires, Test Responses, Field note books, Diagrams, Graphs, Models, Conclusions, Laboratory note books</td>
<td>Temporary

Destroy 15 years after date of termination of the trial.</td>
<td>Hold in work unit pending destruction as recommended by the Chief Investigator.

Electronic records should be maintained in readable format pending destruction.</td>
<td>Faculties, Academic Departments & Schools</td>
</tr>
<tr>
<td>0600/2550/3</td>
<td>Collection and analysis of research data involving clinical trials, where the product being trialled did end up going into production.

Includes experimental results/readings, Photographs and other recordings of experimental outcomes (i.e. audiotape, videotape, databases, films), Data sheets, Observations, Questionnaires, Test Responses, Field note books, Diagrams, Graphs, Models, Conclusions, Laboratory note books</td>
<td>Temporary

Destroy 15 years after date the production of the product ceases.</td>
<td>Hold in work unit pending destruction as recommended by the Chief Investigator.

Electronic records should be maintained in readable format pending destruction.</td>
<td>Faculties, Academic Departments & Schools</td>
</tr>
</table>

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CLASS NO.	DESCRIPTION	DISPOSAL ACTION		PRIME SOURCE
		RETENTION	**CUSTODY**	
RESEARCH DATA AND RECORDS RETENTION AND DISPOSAL *Extract from the University of Melbourne Records Retention and Disposal Authority Current at 10 June 2010*				
0600/2550/4	Collection and analysis of research data from psychological research subjects.\n\nIncludes both child and adult research subjects.	**Temporary**\n\nDestroy 7 years after last attendance or access on behalf of the patient, provided the patient has reached 25 years of age.	Hold in work unit pending destruction as recommended by the Chief Investigator.\n\nElectronic records should be maintained in readable format pending destruction	Faculties, Academic Departments & Schools
0600/2550/5	Collection and analysis of research data that is part of a significant project that made a major contribution to research; or is part of a project that was controversial, subject to extensive debate or aroused wide interest; or is part of a project that involves the use of major new or innovative techniques; or part of a first of a kind process or product or significantly improves on an existing product or application; or is the work of an eminent researcher such as a widely acknowledged authority in their field or a person who has in some other way achieved prominence; or has value for research in other disciplines e.g. history and philosophy of science, history and sociology.	**Permanent**\n\nRetain as University Archives.	Transfer hard copy original or electronic original to Central Research Data Centre or University Library after administrative use concluded, as recommended by chief investigator.	Faculties, Academic Departments & Schools

E: Research Data and Records Retention and Disposal at the University of Melbourne

Master copy held at: http://www.unimelb.edu.au/records/corporate/disposal.html

CLASS NO.	DESCRIPTION	DISPOSAL ACTION		PRIME SOURCE
	RESEARCH DATA AND RECORDS RETENTION AND DISPOSAL *Extract from the University of Melbourne Records Retention and Disposal Authority Current at 10 June 2010*			
		RETENTION	CUSTODY	
0600/6400/1	Departmental and Research Unit registers of research projects. *NOTE: A project is currently underway to add a Research Projects Register in Themis and custody status of the Register may change in 2010 to reflect that.	**Permanent** Retain as University Archives.	Transfer hard copy original or electronic original to Research Office when administrative use concluded.	Academic Departments & Schools, Research Units
0600/6450	**PUBLISHING** The activities involved in having works of intellectual property issued for sale or distribution. Includes publishing to the web. Use **INFORMATION MANAGEMENT - PUBLISHING** for website and webpage management			
0600/6450/7	Publication or final presentation of results of research projects. Includes drafts for publication in external publications, final research reports.	**Permanent** Retain as University Archives.	Transfer hard copy original or electronic original to Library when administrative use concluded.	Academic Departments & Schools, Research Units