

The Basics of **RESEARCH DATA MANAGEMENT (BRDM):**

Jukka Rantasaari, Eliisa Löyttyniemi, BRDM Working Group
University of Turku
Åbo Akademi University



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The Basics of
RESEARCH DATA MANAGEMENT
(BRDM):

Course for Doctoral Students and Post Doc
Researchers

3 ECTS Research Data Management Course for Doctoral Students and Post Doc Researchers
at the University of Turku and Åbo Akademi University, Finland, Spring 2020.

The Curriculum is based on interview study by Jukka Rantasaari (jukka.rantasaari@utu.fi)
and Heli Kokkinen (heli.kokkinen@utu.fi) concerning doctoral students' RDM practices,
competencies and competency needs: <https://docs.lib.purdue.edu/iatul/2019/fair/5/>

Course Structure

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HEALTH SCIENCES	SURVEYS	INTERVIEWS	NATURAL SCIENCES	TEACHERS
Introductory Lecture (Practicalities; Background and concepts; Characteristics of high quality research plan)				Biostatistician, Head of Library Services, Grant Writer
Research plan: 1. Objective 2. Design 3. Implementation 4. Expected results	Research plan: 1. Objective 2. Design 3. Implementation 4. Expected results	Research plan: 1. Objective 2. Design 3. Implementation 4. Expected results	Research plan: 1. Objective 2. Design 3. Implementation 4. Expected results	Researchers, Lectors, University Teachers
Data management plan (DMP) 1. Basics of DMP 2. DMP-Tuuli Tool	Data management plan 1. Basics of DMP 2. DMP-Tuuli Tool	Data management plan 1. Basics of DMP 2. DMP-Tuuli Tool	Data management plan 1. Basics of DMP 2. DMP-Tuuli Tool	Data Librarians
IPR rights issues, permits and licences	IPR rights issues, permits and licences	IPR rights issues, permits and licences	IPR rights issues, permits and licences	Legal Affairs, CRC, Data Librarian
Privacy notice and risk analysis				Head of Research IT, Data Protection Officer
RedCap (building form based database)	RedCap (building survey form)	NVIVO (organizing data)	RedCap (building form based database, electronic laboratory tools)	Biostatistician, Lector
Data storage, protection, processing, describing and IT Service solutions				Head of Research IT, IT Architect
Data preservation, sharing and citing (national citation standard). General and discipline specific open data repositories				It Architect, Data Librarian
DMP Workshop		DMP Workshop		All Teachers

Learning objectives

BRDM 2020



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BRDM 2020 Curriculum: Learning objectives

- § Know the concepts "research data" and "research data management" (RDM), and understand the significance of beginning the planning of data management before a project starts.
- § Understand the contents and structure of the high-quality research plan and especially how to write the data section.
- § Is familiar with the data lifecycle, the various data types and formats as well as the requirements of data security, data protection and data sensitivity for the processing and reuse of data.
- § Recognize the value of data not only for his/her own research project but also for him/herself or other potential users after the research project and hence the importance of data organization, protection and documentation throughout the entire data lifecycle.
- § Is able to identify what licences different research projects require and how to get them.
- § Have an understanding of the role of intellectual property rights in the reuse of data, know the practices and standards concerning data sharing and data citing and is able to identify main generic and discipline specific data repositories.
- § Comprehend the principles of data ownership and the difference between whether the researcher or the university owns the data.
- § Learn to use the REDCap database or NVivo software for collecting and organizing data.

Module 0: Introductory lecture

- § Know the meaning of the concepts "research data" and "research data management".
- § Recognize the value of data - not only for his/her own research project but also for him/herself or other potential users after the research project.
- § Be familiar with the generic phases of a typical data lifecycle.
- § Understand the significance of beginning the planning of data management before a research project starts.
- § Be aware of the learning target of the curriculum, and how the different study programmes, modules and their contents are part of the research data lifecycle and RDM in different contexts.
- § Be familiar with practical procedures like study methods, mandatory participation, how to compensate non-attendance, how to get credit, etc.
- § Understand why teachers use cases and examples from research plans to illustrate principles in different practical contexts (participants are expected to write their own research plan and data management plan (DMP) during the course).
- § Be familiar with the contents and structure of a high-quality research plan
- § Understand the importance of a high-quality research plan.

Module 1: Research plan

- § Understand the lifecycle of the research process
- § Be familiar with the structure of a research plan
- § Identify the aspects of research data to be written in a research plan
- § Understand the relevance of research data as part of the research project lifecycle
- § Identify the aspects of samples, data gathering methods, measures, and background variables that need to be written down in a research plan
- § Understand the central viewpoints in building a research population

Module 2: Data management plan

- § Understand what a data management plan (DMP) is, and why it is needed
- § Identify the typical lifecycle of research data. Be able to plan, write and update a DMP
- § Be familiar with basic RDM concepts like research data, data management, documentation, metadata, storage, preservation, sharing, and citing
- § Understand the importance of metadata

Module 3: IPR rights issues, permits and licences

- § Understand the meaning and impact of IPR, agreements, permits, and licenses on research data gathering, processing, storage, and sharing
- § Identify the basics of data ownership, and how the ownership affect different data management principles and practices
- § Be familiar with anonymization and pseudonymization, and recognize when they are needed
- § Identify the basic methods of anonymization of qualitative and quantitative methods

Module 4: Privacy notice and risk analysis

- § Understand the importance of data protection for the collection, processing, storing and sharing of research data, and be able to prepare the data privacy statement and also the risk analysis when it is needed.

Module 5: Data collecting and organizing (REDCap) and analyzing (Nvivo)

- § Understand the relevance of a database as a data collecting, organizing, maintaining, and analyzing tool. Be able to build REDCap database for one's own research data (Health Sciences, Survey, and Natural Sciences Study Programme)
- § Be familiar with NVivo software for the organizing, coding, documenting, describing, and analysis of qualitative research data (Interviews Study Programme)
- § Recognize the meaning and importance of documentation and metadata, and be able to create documentation and structural metadata to one's research data

Module 6: Data storage, protection, processing, describing and IT Service solutions

- § Be able to consider the storage and backup requirements of data and to plan actions for these needs based on the existing UTU IT's service offering;
- § Have a practical understanding of what kind of storage services are available at the University of Turku, Åbo Akademi University, and CSC for different needs during the research project, and have knowledge of available IT services for research
- § Understand the importance of study, dataset and variable level descriptions and overall documentation as a part of research data management and be able to identify the methods (scripts/documentations) as a specific research output. To be aware of the possibilities of publishing the methodological outputs.

Module 7: Data preservation, sharing and citing (national citation standard). General and discipline specific open data repositories

- § Understand that the data may have value beyond one's own project
- § Know how to discover and reuse published data sets
- § Understand the FAIR principles in publishing data sets
- § Be familiar with the public services supporting data publication
- § Be able to publish citable datasets in relevant repositories

Module 8: DMP Workshop

- § Understand how the different phases and aspects of RDM are combined together in the DMP
- § Is able to finalize a high quality DMP for her/himself following the DMPTuuli guidance (<https://dmptuuli.fi/>)
- § Is able to peer review other DMPs according to DMPTuuli guidance



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jukka.Rantasaari@utu.fi

eliisa.loyttyniemi@utu.fi