



Research Data MANTRA in Nottingham

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1. Research Data MANTRA

Research Data MANTRA¹ is an open, online research data management self-paced course designed for PhD students and early career researchers in the initial stages of their research careers and others who are planning a research project using digital data. Produced by the University of Edinburgh, MANTRA was one of the key outputs from the Joint Information Systems Committee (JISC) Research Data Management Training Materials (RDMTrain²) strand of activity of the first JISC Managing Research Data Programme³, which ran from 2009 -2011.

MANTRA is Open Educational Resource that may be freely used by anyone. It is available through a Creative Commons open attribution license⁴ for re-using, rebranding and repurposing.

MANTRA consists of a set of training materials, which present research data management principles and examples to a PhD and early career researcher audience. The training materials consist of ten learning units, listed below:

1. Introduction to the course
2. Research data explained
3. Data management plans
4. Organising data
5. File formats and transformation
6. Documentation and metadata
7. Storage and security
8. Data protection, rights and access
9. Preservation, sharing and licensing
10. Recommended resources

The learning units were produced using open-source Xerte software⁵. MANTRA includes interactive elements such as audio-visual content, video narratives, and quizzes. There are several self-paced practical exercises on data handling skills and various software exercises cover: SPSS, NVivo, R, and ArcGIS.

Course content is aimed at three subject disciplines: geosciences, social and political sciences and clinical psychology, however, many of the issues covered apply equally to all research disciplines.

MANTRA is available to work through online on the national data centre at the University of Edinburgh website EDINA and for download as re-usable learning objects from Jorum⁶.

¹ <http://datalib.edina.ac.uk/mantra/>

² <http://www.jisc.ac.uk/whatwedo/programmes/mrd/rdmtrain.aspx>

³ <http://www.jisc.ac.uk/whatwedo/programmes/mrd.aspx>

⁴ <http://datalib.edina.ac.uk/mantra/acknowledgements.html>

⁵ <http://www.nottingham.ac.uk/xerte/index.aspx>

⁶ <http://dspace.jorum.ac.uk/xmlui/handle/10949/16055>

2. ADMIRE and the Graduate School

The University of Nottingham (Nottingham) ADMIRE project ran from October 2011 through June 2013 and was one of the JISC Managing Research Data (JISCMRD) institutional projects⁷, which aim to pilot or further develop and extend infrastructures for research data management as part of an institutional mission to provide high quality support for research. One of the aims of the project was to identify high quality training resources on research data management, both generic and subject specific. Once implemented, these resources would be tested in the form of a pilot in the Nottingham Faculty of Social Sciences.

Nottingham's Graduate School⁸ supports all postgraduates and early career research staff. An important part of their remit is to provide training and development opportunities, workshops and events, and help with funding. In the summer of 2012, staff from the Graduate School and the ADMIRE project team held several meetings to discuss the possibility of re-using Research Data MANTRA and embedding it in Moodle, Nottingham's Virtual Learning Environment (VLE).

The work package was divided as follows with split responsibility between ADMIRE and the Graduate School:

Technical - Downloading MANTRA learning units from JORUM, minor changes to content (provided by ADMIRE team), repackaging and uploading to Moodle and Moodle course creation. This was the responsibility of the Graduate School.

Content - the content of each learning unit was reviewed and any UoN specific material was to be included in the relevant packages. This was the responsibility of the ADMIRE team.

Course tasks and assessment - Task were developed for students to optionally gain training points. This was the responsibility of the ADMIRE team.

User Testing - Feedback from post-graduate students. This was the responsibility of the ADMIRE team.

The work was successfully completed and in spring 2013 the 'MANTRA in Moodle' course was launched and users who completed the assessment could gain training points towards their CPD portfolio.

3. Embedding MANTRA in Moodle

This was the responsibility of the Graduate School. Each of the MANTRA learning units were downloaded from the JORUM repository as the University of Edinburgh team made them available. Each learning unit was opened in Xerte and changes made to the content as identified by the ADMIRE team. The learning units were then repackaged with the updated content. A module shell was created in Moodle, contextual information and assessments were added and the learning units uploaded.

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http://www.jisc.ac.uk/whatwedo/programmes/di_researchmanagement/managin_gresearchdata.aspx

⁸ <http://www.nottingham.ac.uk/graduateschool/index.aspx>

The self-enrol option was selected in Moodle meaning the MANTRA module can be instantly accessed by any Nottingham student or staff member using this link:

<http://moodle.nottingham.ac.uk/course/view.php?id=9791>

Links were made to the module from the University's Short Courses Website and the Graduate School's Research Training Workspace. The course was also advertised via Twitter and the Graduate School bulletin and as a Graduate School news item.

4. User testing

The ADMIRE Research Data Management Service Developer arranged for two Faculty of Social Sciences PhD students to engage in user testing of the online course in May 2013. The session lasted two hours and both participants responded to an invite to user testing. The Graduate School and the ADMIRE project team used social media channels (Twitter and FaceBook) to advertise for volunteers.

Only two PhD students responded to the invite and in further discussions with the student's they both said they were alerted to the MANTRA user testing via Twitter. They recommended that in order to reach students the use of relevant internal mailing lists would be more useful than advertising on the Graduate School website.

Appendix 1 provides a sample of the documentation provided to each participant, they were asked to read this before any testing began. They were given ten minutes to read the documentation. A sample of the informed consent form is located in Appendix 2.

Responses to 'set' questions can be found in the table below and are transcribed here from written responses.

Questions	Participant one	Participant two
<i>What is your course of study?</i>	Environmental Management/Earth Observation	Geography
<i>How long have you been at UoN?</i>	4 years	4 years
<i>Are you familiar with online learning? Have you studied using online learning modules before?</i>	ESRI Virtual Campus	I use Moodle occasionally but have never done a whole module online

<p><i>What does the term 'data management' mean to you?</i></p>	<p>The organisation and good practice of storing, manipulating and managing datasets to ensure robust, transparent, secure and repeatable outcomes/outputs</p>	<p>Largely issue regarding storage come to mind. In terms of personal use but managing data with a long-term view of sharing data involves much more. This includes security (i.e. who can access the database? Is the data confidential?); convenience (online, requires mailing?); Is the metadata sufficient?</p>
<p><i>Choose three of the learning units that interest you and spend the next hour exploring these units</i></p>	<p>Chose:</p> <ul style="list-style-type: none"> • File formats and transformation • Documentation and metadata • Sharing, Preservation and Licensing 	<p>Chose:</p> <ul style="list-style-type: none"> • Data management plans • File formats and transformation • Storage and security
<p><i>What do you think about learning 'online' like this?</i></p>	<p>The online learning environment has a lot of potential to include interactive learning methods and integrating resources such as videos. This was done well, however the technical limitations hindered the learning potential. Nonetheless, the material was presented in a more user-friendly and engaging basis than a textbook for example.</p>	<p>I think that it works well. The introductions to each section/unit followed by case studies really helped me engage with the topic and question. That said, actually being able to talk to someone about these issues is vital, whether that means talking to a supervisor after the module, or indeed at the Graduate School.</p>
<p><i>Do you have any general comments on learning about research data management through an online unit like this?</i></p>	<p>The structure of the modules is clear and logical. Perhaps more opportunity to integrate subject-specific case studies. A lot of material which was consolidated well.</p>	<p>I think, if promoted well, it will be popular as this is a huge issue. NOTES: Beware of typos in the transcripts and elsewhere. I couldn't get the videos to work.</p>

<p><i>What have you learnt (if applicable) about research data management by working through this online module?</i></p>	<p>Research data lifecycle is crucial. Data management plans are crucial.</p> <p>Specifics:</p> <ul style="list-style-type: none"> • Importance of documentation and metadata • Proprietary software and data preservation • Software obsolescence • Creative commons and open data • Depositing data 	<p>I have learnt about the value of a data management plan as, while I am organised, I don't have a formalised plan.</p>
<p><i>Do you have any comments on the length and pace of the units?</i></p>	<p>There is a lot of material; however, this cannot really be avoided, as it is all mostly relevant. Although an hour for each module is quite long, the knowledge gained has considerable longevity.</p>	<p>One hour per unit is sufficient, it seems.</p>

During the final 15 minutes of the session both participants were asked to provide some personal reflections on research data management in general, not specifically related to MANTRA. This was very useful and issues raised include:

- Low awareness of the 'types' of research data
- Two hours well worth it – *"I feel so much more aware than I did before I came to the session"*
- Didn't expect statistical transformation to come up as a research data management topic
- Metadata is an interesting topic and the case study in geoscience really demonstrated the theory
- Metadata – should be doing this but very rarely do so
- Would have liked information on anti-virus software – is this not relevant to RDM?
- Never thought about a data management plan – this is such a useful section

5. Conclusion

The initial feedback from post-graduates using MANTRA has been positive and it is reassuring to see a steady uptake of the course. There remain a number of actions that will help sustain the course post-ADMIRE:

1. Monitoring of visitors to the course and having a means of identifying use of the resource (e.g. time spent visiting the course)
2. Raise awareness of the course across the PG (PG) and Early Career Researcher (ECR) communities e.g. via email distribution lists, newsletters, posters, distribution of flyers etc
3. Hold dedicated PG and ECR RDM training events or present at alternative scheduled events e.g. research ethics training events
4. Expand the material to cover other disciplines and Faculties

Although the course is embedded within the portfolio of courses provided by the Graduate School it is suggested that further awareness raising work be carried out. However, even without this, it is expected that uptake of the course will continue to increase as RDM demands impact the relevant researchers communities across Nottingham.

Finally, this activity represents a worthy example of an externally funded project working in collaboration with an institutional stakeholder. While ensuring that the prior work of Edinburgh and JISC is reused and continues to add value to other institutions such as Nottingham.

6. Acknowledgements

The ADMIRE project and The University of Nottingham are grateful to the Data Library and EDINA at the University of Edinburgh for allowing us to re-use and modify Research Data MANTRA⁹ for use at Nottingham.

⁹ <http://datalib.edina.ac.uk/mantra>

7. Appendix

7.1. User Testing Documentation

1. Gaining access to the research data management module

Log into Moodle at Nottingham with your university username and password at <https://moodle.nottingham.ac.uk/login/index.php>

Search for the Research Data Management module at <http://moodle.nottingham.ac.uk/course/search.php>

You should now have access to the Research Data Management Module, it should look like this:



The screenshot displays the Moodle Nottingham user interface. At the top, the user is logged in as Laurian Williamson. The breadcrumb trail shows the path: My home > My Modules > BR-RDM-UK. The main content area features a navigation menu on the left with options like Site home, My profile, and My Modules. The current course, BR-RDM-UK, is expanded to show sub-modules: Participants, Reports, Research data management, Course material, and Assessment. The 'Research data management (UK)' section is highlighted, containing a description of the course and an image of a tablet with a 3D bar chart. The description states that the course is for postgraduate students and early career researchers, covering disciplines like geosciences, social and political sciences, and clinical psychology. A note at the bottom indicates the course is delivered online.

2. Introduction to Research Data MANTRA online module – information for users

Research Data MANTRA is an online module produced by the University of Edinburgh. The Graduate School and the ADMIRe project team (research data management project) have embedded the module in Moodle at the University of Nottingham.

This course is particularly appropriate for postgraduate students and early career researchers who work with data and would like to learn more about managing their research data. The course content is mainly geared for three disciplines: geosciences, social and political sciences and clinical psychology, however, many of the issues covered apply equally to all research disciplines.

The course is delivered online so you learn at times and in places that suit you. The emphasis is on practical experience and online activities exploring key research data management issues.

Each unit takes around 1 hour of study and you progress by reading the online material, working through the scenarios, watching the videos and completing one of the data handling exercises.

There are eight units in the module and the following topics are covered:

1. Research data explained
2. Data Management Plans
3. Organising data files
4. File formats and transformation
5. Documentation and metadata
6. Storage and security
7. Data protection, rights and access
8. Preservation, sharing and licensing

3. What does this user testing involve?

The aim of this user testing is to evaluate how relevant and useful the content is for your research data management practice.

During the session you will be using a PC and browser of your choice to access the content of the units online, we will ask you to:

Read through unit one 'Research Data explained' and provide feedback to the facilitator on the content of unit one

Select three of the units of topics that interest you the most, work through them at your own pace and provide feedback to the facilitator

The facilitator will be taking notes of any comments that you make and may also prompt you to comment as you work through the units

We expect that this session will last up to an hour and after the session is complete you will be asked to fill out an exit questionnaire. Please answer all questions with complete honesty and feel free to ask the facilitator any questions.

Initial questions:

1. What is your course of study?
2. How long have you been at UoN?
3. Are you familiar with online learning? Have you studied any online learning modules before?
4. What does the term 'data management' mean to you?

Research Data Management MANTRA user testing exit questions

1. Title of the unit(s) you tested:

2. What do you think about learning online like this?

3. Do you have any general comments on learning about research data management through an online unit like this?

4. What have you learnt (if applicable) about research data management by working through this online module?

5. Do you have any comments on the length and pace of the units?

7.2. Research Data MANTRA user testing informed consent form

Facilitator: Laurian Williamson, Research Data Management Service Developer

Participant:

This is a user testing session about Research Data MANTRA online module intended for postgraduate students and early career researchers.

In this session you will be asked to:

Work through some of the online units at your own pace

Fill in a short questionnaire about the units you have tested

The facilitator will sit in the same room, observing and taking notes. The facilitator will help you if you are stuck or have questions.

All information collected in this session will be used to inform the UoN Research Data Management project ADMIRe. The session will not be recorded. We may publish the results from this session in our project reports, but all such reports will be confidential and will not include your name.

This is a test of the online module, we are not testing you. You may take a break as required and stop your participation in the testing at any time.

If you have any questions after today, please contact Laurian Williamson at laurian.williamson@nottingham.ac.uk

Statement of informed consent

I have read the description of the study and of my rights as a participant, and had all of my questions answered. I voluntarily agree to participate in the study.

Name:

Signed:

Date: