GRIIDC Compendium of Training Resources

Training Resource: Data Management Course for Graduate Students
Organization: University of Minnesota Libraries
Website: https://sites.google.com/a/umn.edu/data-management-workshop-series/
Disciplines: All
Audience: Graduate students
Format: Online videos, recorded session available online
Description from UofMN: This short course on data management is designed for graduate students who seek to prepare themselves as "data information literate" scientists in the digital research environment. Videos and writing activities will prepare trainees for specific and long-term needs of managing research data. Experts share expectations and give advice on how to ethically share and preserve research data for long-term access and reuse.
Seven web based lessons include:

1. Introduction to Data Management (~5 minutes)
2. How to Inventory, Store, and Backup Your Data (~ 5 minutes)
3. How to Create Data that You (and Others) can Understand (~5 minutes)
4. How to Navigate Rights and Ownership of your Research Data (~9 minutes)
5. How to Share Your Data and Ethically Reuse Data Created by Others (~5 minutes)
6. How to Digitally Preserve Your Data for the Future (~5 minutes)
7. Complete your DMP (~5 minutes)

Training Resource: Data Management Course –Engineering Section
Organization: University of Minnesota Libraries
Website: https://sites.google.com/a/umn.edu/data-management-course_structures/
Disciplines: Engineering
Audience: Graduate students
Format: Online videos
Description from UofMN: This short course on data management is designed for graduate students in engineering disciplines who seek to prepare themselves as "data information literate" scientists in the digital research environment. Videos and writing activities will prepare trainees for specific and long-term needs of managing research data. Experts share expectations and give advice on how to ethically share and preserve research data for long-term access and reuse.
Seven web based lessons include:

1. Introduction to Data Management (~5 minutes)
2. Data to be Managed (~ 5 minutes)
3. Organization and Documentation (~5 minutes)
4. Data Access and Ownership (~9 minutes)

5. Data Sharing and Reuse (~5 minutes)
6. Preservation Techniques (~5 minutes)
7. Complete your DMP (~5 minutes)

Training Resource: USGS Data Management Training Modules
Organization: USGS
Website: http://www.usgs.gov/datamanagement/training/modules.php
Disciplines: General Science
Audience: Researchers, Data Stewards, Managers
Format: Online videos
Description from USGS: These three interactive modules help researchers, data stewards, managers and the public gain an understanding of the value of data management in science and provide best practices to perform good data management within their organization.
Three online presentation modules include:

1. Value of Data Management (~ 15 minutes)
2. Planning for Data Management (~ 15 minutes)
3. Best Practices for Preparing Science Data to Share (~ 20 minutes)

Additional reading about data management planning is also available on the USGS website (http://www.usgs.gov/datamanagement/why.php).

Training Resource: MANTRA Research Data Management Training
Organization: University of Edinburgh
Website: http://datalib.edina.ac.uk/mantra/
Disciplines: All
Audience: Early career researchers, informational professionals, post-graduate students
Format: Online self-paced presentation, with embedded videos
Description from MANTRA: MANTRA is a free, online non-assessed course with guidelines to help you understand and reflect on how to manage the digital data you collect throughout your research. It has been crafted for the use of post-graduate students, early career researchers, and also information professionals. It is freely available on the web for anyone to explore on their own.
Through a series of interactive online units you will learn about terminology, key concepts, and best practice in research data management.
There are nine online units in this course and one set of offline (downloadable) data handling tutorials that will help you:

1. Understand the nature of research data in a variety of disciplinary settings
2. Create a data management plan and apply it from the start to the finish of your research project
3. Name, organize, and version your data files effectively
4. Gain familiarity with different kinds of data formats and know how and when to transform your data
5. Document your data well for yourself and others, learn about metadata standards and cite data properly
6. Know how to store and transport your data safely and securely (backup and encryption)

7. Understand legal and ethical requirements for managing data about human subjects; manage intellectual property rights
8. Recognize the importance of good research data management practice in your own context
9. Understand the benefits of sharing, preserving and licensing data for re-use
10. Improve your data handling skills in one of four software environments: R, SPSS, NVivo, or ArcGIS

Each unit takes up to one hour, plus time for further reading and carrying out the data handling exercises. In the units you will find explanations, descriptions, examples, exercises, and video clips in which academics, PhD students and others talk about the challenges of managing research data. The data handling tutorials assume some experience with each software environment and provide exercises in PDF along with open datasets to download and work through using your own installed software.

Training Resource: New England Collaborative Data Management Curriculum (NECDMC)
Organization: University of Massachusetts Medical School
Website: http://library.umassmed.edu/necdmc/index
Disciplines: Health sciences, sciences, and engineering
Audience: Researchers, graduate students, undergraduates
Format: Downloaded materials including Word documents and PowerPoint Presentations
Description from NECDMC: Each of the curriculum's seven online instructional modules aligns with the National Science Foundation's data management plan recommendations and addresses universal data management challenges. Included in the curriculum is a collection of actual research cases that provides a discipline specific context to the content of the instructional modules. These cases come from a range of research settings such as clinical research, biomedical labs, an engineering project, and a qualitative behavioral health study. Additional research cases will be added to the collection on an ongoing basis. Each of the modules can be taught as a stand-alone class or as part of a series of classes. Instructors are welcome to customize the content of the instructional modules to meet the learning needs of their students and the policies and resources at their institutions.
Seven modules include:

1. Overview of Research Data Management
2. Types, Formats and Stages of Data
3. Contextual Details Needed to Make Data Meaningful to Others
4. Data Storage, Backup, and Security
5. Legal and Ethical Considerations for Research Data
6. Data Sharing & Reuse Policies
7. Repositories, Archiving, & Preservation

Training Resource: Digital Curation 101 Materials
Organization: Digital Curation Centre (DCC)
Website: http://www.dcc.ac.uk/training/train-the-trainer/dc-101-training-materials
Disciplines: All
Audience: All
Format: Downloaded pdf documents

Description from DCC: Digital Curation 101 employs the curation lifecycle model sections as a means of presenting content to students. The DCC is keen to support the reuse of our generic training materials as the basis of more specific training aimed at different disciplines and/or institutions. Our generic materials are accessible below for review and tailoring.
Additional Notes: Resources include 52 handouts about different data and digital resource curation and preservation.

Training Resource: Research Data Bootcamp
Organization: University of Bristol
Website: http://data.bris.ac.uk/research/bootcamp/
Disciplines: All
Audience: Researchers
Format: Webpages with interactive quizzes
Description from Research Data Bootcamp: This online tutorial is appropriate for all members of the University who undertake research with some kind of digital aspect. It will be relevant whether or not your research is funded by an external sponsor. The aim is to enable you to produce high quality data with potential for long-term use. You can work through the tutorial step-by-step using the navigation arrow on the right, links at the bottom of each screen or use the menu above the arrow to jump to a particular section.
The tutorial includes several questions, each marked with the question mark symbol (left). These are designed to reinforce your understanding. Your use of the tutorial and your responses to the questions are not recorded.
This tutorial offers an elementary introduction to the key facets of research data management. It should take you about 30 minutes to complete. You will find links to more in-depth advice and guidance at the end of each section.
The bootcamp is designed to:

- Introduce you to the concept of research data, what constitutes research data, and how it differs from other types of information
- Help you to recognize the importance of good practice in managing research data in general and to apply it to your own research

Training Resource: DATUM for Health: Research data management training for health studies
Organization: Northumbria University
Website:
https://www.northumbria.ac.uk/sd/academic/ee/work/research/clis/dlar/datum/health/materials/?view=Standard
Disciplines: Health focus, but not necessarily registered in a school/faculty of health/medicine
Audience: Postgraduate students
Format: Downloaded materials including PowerPoint slides, Word and pdf documents
Description from Jorum website: The DATUM for Health training program is aimed at postgraduate research (i.e. doctoral) students (PGR) in health studies, including those whose PhD has a health focus

but who are not necessarily registered in a school/faculty of health/medicine (e.g. in psychology, social sciences). The program covers both generic and discipline-specific issues, focusing on the management of qualitative, unstructured data, and is suitable for students at any stage of their PhD. It aims to provide PGR students with the knowledge to manage their research data at every stage in the data lifecycle, from its creation to its final storage or destruction. Students learn how to use their data more effectively and efficiently, how to store and destroy it securely, and how to make it available to a wider audience to increase its use, value and impact.

Training Resource: Data Train for Anthropology
Organization: University of Cambridge
Website: http://www.lib.cam.ac.uk/dataman/datatrain/socanthintro.html
Disciplines: Social Anthropology
Audience: Postgraduate students
Format: Materials can be read online; PowerPoint presentations and pdf files are available for download
Descriptions from Data Train: The DataTrain teaching materials have been designed to familiarize post-graduate students in good practice in looking after their research data. A central tenet is the importance of thinking about this in conjunction with the projected outputs and publication of research projects. This teaching package is focused on data management for Social Anthropology.
The following materials are available for each course:

- Notes and PowerPoint presentations for a series of three course modules. Each is intended to run for 1.5 hours (minimum), and designed to encourage active participation and knowledge sharing from students. The duration might therefore change depending on the expected level of participation, as well as on instructors' preferences. The notes are detailed, providing the course instructors with background information and examples (though these should be supplemented or replaced with examples from the instructor's own department and experience in order to make the course as relevant as possible), while the PowerPoint slides are designed to act as prompts for key concepts and points of discussion.
- A list of useful software; this is a helpful addition to each of the three main modules.
- A list of references and web-based resources that can be handed out to participants for further reference.

Training Resource: Data Train for Archaeology
Organization: Archaeology Data Service
Website: http://archaeologydataservice.ac.uk/learning/DataTrain
Disciplines: Archaeology
Audience: Post-graduates
Format: Downloaded materials including PowerPoint presentations, and PDF or RTF documents
Description: The aim of this course is to equip first year post-graduate students with essential skills in looking after their research data for their PhD. By teaching data management as part of core post-graduate research skills training, habits of good practice will be established at an early stage of a researcher's career which they will take forward through the rest of their work. Beyond and outside of

academia, a demonstrable proficiency in data management is a highly valued cross-disciplinary and transferrable skill.

Eight modules include:

1. Creating and managing research data in archaeology: an overview
2. Data lifecycles and management plans
3. Working with digital data
4. Rights and digital data
5. E-Theses and supplementary digital data
6. Archiving digital data
7. Post-graduate data management plans
8. Project and professional data: data management on post-doctoral research projects and beyond

Training Resource: UK Data Service Training Book "Managing and Sharing Research Data" and companion website
Organization: UK Data Service
Website for book: http://data-archive.ac.uk/media/2894/managingsharing.pdf
Website: http://ukdataservice.ac.uk/manage-data/handbook.aspx
Disciplines: Social sciences
Audience: Researchers
Format: Book available for download (42 pages) and website
Description: Written by experts from the UK Data Archive with over 20 years experience, this book gives postgraduate students, researchers and research support and management staff the data management and sharing skills needed in today's changing research environment.

In this book there is guidance on:

- how to plan data management and data sharing for your research
- how to document and describe content for data
- how to format and organise research data
- how to store and transfer data
- research ethics and privacy in data sharing and intellectual property rights
- data strategies for collaborative research
- how to publish and cite research data
- opportunities and limitations in using other people's research data, illustrated with real-life data reuse cases

Illustrated with exercises and discussions to test your understanding and develop your skills, and numerous real case studies, this book is essential reading for anyone undertaking, managing or supporting research in the wider social and economic sciences.

Training Resource: Research Data Management Training Materials
Organization: University of Oxford
Website: http://damaro.oucs.ox.ac.uk/training_materials.xml
Disciplines: All
Audience: Early career researchers and postgraduate research students

Format: Materials for download include PowerPoint presentation and pdf documents
Description: The Data Management Rollout at Oxford (DaMaRO) Project ran a series of face-to-face training events, aimed chiefly at postgraduate research students and early career researchers. The final versions of the teaching materials from these events are available online for download.

Training Resource: Data Management Short Course for Scientists
Organization: Earth Science Information Partners (ESIP) Commons, with NOAA and the Data Conservancy
Website: http://commons.esipfed.org/datamanagementshortcourse
Disciplines: Scientists
Audience: Scientists, emerging scientists, and data professionals
Format: Videos can be streamed online and PowerPoint presentations are available for download
Description: The ESIP Federation, in cooperation with NOAA and the Data Conservancy, seeks to share the community's knowledge with scientists who increasingly need to be better data managers, as well as to support workforce development for new data management professionals. Four sections include:

1. The Case for Data Stewardship
2. Data Management Plans
3. Local Data Management
4. Responsible Data Use

Training Resource: Education Modules
Organization: DataOne
Website: https://www.dataone.org/education-modules
Disciplines: All
Audience: All
Format: PowerPoint presentations available for download
Description: A series of education modules in *.ppt format that you can download and incorporate into your teaching materials. Ten modules include:

1. Why Data Management?
2. Data Sharing
3. Data Management Planning
4. Data Entry and Manipulation
5. Data Quality Control and Assurance
6. Data Protection and Backups
7. Metadata
8. How to Write Quality Metadata
9. Data Citation
10. Analysis and Workflows

Training Resource: Data Management for Data Providers
Organization: Oak Ridge National Laboratory Distributed Active Archive (ORNL-DAAC)
Website: http://daac.ornl.gov/PI/pi_info.shtml

Disciplines: Science
Audience: Data providers
Format: Website and online webinars
Description: These pages provide an overview of data management planning and preparation and offer practical methods to successfully share and archive your data. Topics covered include planning, managing, and archiving environmental data. Webinars available include good data management practices for tabular data and spatial data, amongst others.

Training Resource: Data Management Plan Tutorial
Organization: Pennsylvania State University
Website: https://www.e-education.psu.edu/dmpt/
Disciplines: Science
Audience: Faculty, students, staff
Format: Website with embedded video
Description: This tutorial is designed to help Penn State faculty, students, and staff involved in grant proposal writing to understand what a DMP is, what it enables for a research project, what goes into a DMP, and how to think through some of the issues that can emerge with data - such as security and protections for restricted data, as well as storage and preservation of data. Running throughout the tutorial is the scenario of a graduate student assisting a faculty member in writing a data management plan. This scenario-based tutorial consists of modules that provide context and information for each component of a DMP; video interviews with researchers and an archivist who talk about real-world data management challenges; and readings and other resources on data management to inform faculty and students further in the development of their plans.
7 modules include:

1. Introduction to Data Management Plans
2. Data and Data Collection
3. Documenting the Data
4. Policies for Data Sharing and Access
5. Reuse and Redistribution of Data
6. Long-Term Preservation and Archiving of Data
7. Next Steps to Take

Training Resource: Guide to Social Science Data Preparation and Archiving: Best Practices Throughout the Data Life Cycle, 5th Edition
Organization: Inter-University Consortium for Political and Social Research
Website: http://www.icpsr.umich.edu/files/deposit/dataprep.pdf
Disciplines: Social Sciences
Audience: All
Format: Book, 44 pages available for download
Description: The *Guide to Social Science Data Preparation and Archiving* is aimed at those engaged in the cycle of research, from applying for a research grant, through the data collection phase, and ultimately to preparation of the data for deposit in a public archive. The *Guide* is a compilation of best

practices gleaned from the experience of many archivists and investigators. The reader should note that the *Guide* does not attempt to address policies and procedures specific to certain archives, as they vary. Most public social science archives encourage investigators to contact them at any point in the research process to discuss their plans with respect to the design and preparation of public-use datasets.

Training Resource: University of Virginia Graduate Student Data Management Portal
Organization: University of Virginia
Website: https://pages.shanti.virginia.edu/SciDaC_Grad_Training/graduate-student-lifecycle-2-2/
Disciplines: All
Audience: Graduate Students
Format: Website
Description: A resource built to help graduate students fulfill their data management needs. We've developed three different ways to access the information in this portal:

1. You can choose a stage of the **graduate student lifecycle** to learn about things you'll need to know while completing your coursework, writing your proposal, collecting your data, or publishing your research.
2. You can choose a **data need** to find out all kinds of data-related information about a particular topic.
3. If you're looking for something specific to your department or discipline, you can check out our **subject area** pages, which list useful resources and tools for specific disciplines.

Training Resource: Responsible Conduct of Research Data Management
Organization: Northern Illinois University
Website: http://www.ori.dhhs.gov/education/products/n_illinois_u/flash/rcr.html
Disciplines: All
Audience: Faculty and graduate students
Format: Online self-paced HTML or flash presentations
Description: The module is intended for self-paced learning by faculty and graduate students in the initial stages of their research careers, those involved in providing support for research activities, or by anyone interested in learning more about research data management issues.
The module content is organized under seven topics as:

1. Overview of Data Management
2. Data Selection
3. Data Collection
4. Data Handling
5. Data Analysis
6. Data Reporting and Publishing
7. Data Ownership.

It is suggested that users go through the content in the order listed above. However, if a user would like to go through only particular topics, then it is highly recommended that the Overview of Data Management topic be viewed first before the other topics.
Each topic includes an outline, quizzes, games, a glossary and case studies.