

# **Data Management for Researchers**

**Organize, Maintain and Share your Data  
for Research Success**

**Kristin Briney**

**RESEARCH SKILLS SERIES**

Pelagic Publishing | [www.pelagicpublishing.com](http://www.pelagicpublishing.com)

# CONTENTS

About the author	ix
Acknowledgements	x
<b>Chapter 1 The data problem</b>	<b>1</b>
1.1 Why is everyone talking about data management?	2
1.2 What is data management?	4
1.3 Why should you do data management?	8
<b>Chapter 2 The data lifecycle</b>	<b>9</b>
2.1 The data lifecycle	9
2.2 The data roadmap	11
2.3 Where to start with data management	14
2.4 Chapter summary	15
<b>Chapter 3 Planning for data management</b>	<b>16</b>
3.1 How to plan for data management	16
3.2 Creating a data management plan	19
3.3 Data policies	24
3.4 Case studies	31
3.5 Chapter summary	34
<b>Chapter 4 Documentation</b>	<b>35</b>
4.1 Research notes and lab notebooks	36
4.2 Methods	44
4.3 Other useful documentation formats	46
4.4 Metadata	50
4.5 Standards	57
4.6 Chapter summary	61
<b>Chapter 5 Organization</b>	<b>62</b>
5.1 File organization	62
5.2 Naming conventions	69

5.3 Documenting your conventions	73
5.4 Databases	75
5.5 Chapter summary	79
<b>Chapter 6 Improving data analysis</b>	<b>80</b>
6.1 Raw versus analyzed data	80
6.2 Preparing data for analysis	82
6.3 Managing your research code	88
6.4 Chapter summary	93
<b>Chapter 7 Managing sensitive data</b>	<b>94</b>
7.1 Types of sensitive data	94
7.2 Keeping data secure	98
7.3 Anonymizing data	108
7.4 Chapter summary	115
<b>Chapter 8 Storage and backups</b>	<b>116</b>
8.1 Storage	116
8.2 Backups	122
8.3 Case studies	125
8.4 Chapter summary	125
<b>Chapter 9 Long-term storage and preservation</b>	<b>127</b>
9.1 What to retain and how long to retain it	127
9.2 Preparing your data for the long term	132
9.3 Outsourcing data preservation	137
9.4 Chapter summary	139
<b>Chapter 10 Sharing data</b>	<b>140</b>
10.1 Data and intellectual property	140
10.2 Local data sharing and reuse	145
10.3 Collaborations	146
10.4 Public data sharing	147
10.5 Getting credit for shared data	160
10.6 Chapter summary	162
<b>Chapter 11 Data reuse and restarting the data lifecycle</b>	<b>163</b>
11.1 Finding and reusing data	163
11.2 Citing data	167
11.3 Restarting the data lifecycle	169
References	171
Index	186