## CONTENTS

**Preface**

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Introduction</strong></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>The scope of this book</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>The four problems</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Different approaches to studying behaviour</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Why measure behaviour?</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td><strong>Think before you measure</strong></td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Choosing the level of analysis</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Choosing the species</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Choosing where to study</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Choosing when to observe</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Effects of the observer on the subject</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Anthropomorphism</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Ethical considerations</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>23</td>
</tr>
<tr>
<td>3</td>
<td><strong>Getting started</strong></td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>The steps involved in studying behaviour</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Preliminary observation</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Describing behaviour</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Choosing categories</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Defining categories</td>
<td>35</td>
</tr>
</tbody>
</table>
## Contents

Types of measure 36  
Events and states 39  
The different levels of measurement 40  
Summary 41  

### 4 Individuals and groups

Identifying individuals 42  
Individual differences 44  
Assessing individual distinctiveness 45  
Defining a group 46  
Summary 47  

### 5 Recording methods

Sampling rules 48  
Recording rules 51  
Continuous recording 52  
Instantaneous sampling 53  
One-zero sampling 54  
Choosing the sample interval 55  
The disadvantages and advantages of time sampling 57  
Summary 60  

### 6 The recording medium

The options available 62  
Check sheets 65  
Event recorders 67  
Summary 70  

### 7 How good are your measures?

Reliability versus validity 72  
Within-observer versus between-observer reliability 74  
Measuring reliability using correlations 76  
How reliable is reliable? 78  
Other ways of measuring reliability 78  
Factors affecting reliability 80
Contents vii

Dealing with unreliable measures 81
How independent are the measures? 82
Summary 85

8 How good is your research design? 86
Performing experiments 86
Experimental design 87
Studying development 92
Tests of preference and differential responsiveness 97
Composite measures 100
How much information to collect? 101
Summary 102

9 Statistical analysis 103
General advice on statistics 103
Spreadsheets and databases 104
Exploratory versus confirmatory analysis 105
What statistical tests should be used? 107
Analysis of variance (ANOVA) 109
Correlation 110
Simple regression 112
General linear models (GLMs) 114
Multivariate statistics 115
Circular statistics 118
Did you collect enough data? 119
Summary 119

10 Analysing specific aspects of behaviour 121
Bout length 121
Analysing sequences 122
Analysing rhythms 125
Choice tests 127
Social behaviour 129
Summary 134
# Contents

## 11 Interpreting and presenting findings

- Floor and ceiling effects
- Assessing significance
- Problems with correlations
- Treasuring your exceptions
- Prior knowledge and Bayes’ theorem
- Modelling
- Presentation of findings
- Science and the public interest
- Summary

Appendix 1. Units of measurement
Appendix 2. Some statistical terms
Appendix 3. Advice on statistics textbooks
Appendix 4. Checklist to consult before publication
References
Index