Contents

Preface **v**

Contents **vii**

1 Introduction **1**
Kinds of publication 2
Writing, science, and skepticism 3
Using this book 4
Spelling and terminology 6

2 Good style **7**
Economy 8
Tone 9
Examples 12
Motivation 13
Balance 14
Voice 14
The upper hand 16
Obfuscation 16
Analogies 17
Straw men 18
Reference and citation 19
Quotation 24
Acknowledgements 26
Grammar 27
Beauty 27

3 Style specifics **29**
Titles and headings . . . 30
The opening paragraphs . . . 31
Variation . . . 33
Paragraphing . . . 33
Ambiguity . . . 34
Sentence structure . . . 36
Tense . . . 40
Repetition and parallelism . . . 40
Emphasis . . . 42
Definitions . . . 43
Choice of words . . . 43
Qualifiers . . . 45
Misused words . . . 46
Spelling conventions . . . 50
Jargon . . . 51
Cliché and idiom . . . 52
Foreign words . . . 52
Overuse of words . . . 53
Padding . . . 54
Plurals . . . 56
Abbreviations . . . 57
Acronyms . . . 57
Sexism . . . 58

4 Punctuation **59**
Fonts and formatting . . . 59
Stops . . . 60
Commas . . . 61
Colons and semicolons . . . 62
Apostrophes . . . 63
Exclamations . . . 63
Hyphenation . . . 64
Capitalization . . . 64
Quotations . . . 65
Parentheses . . . 66
Citations . . . 67

5 Mathematics **69**
Clarity . . . 69
Theorems . . . 71
Readability . . . 72
Notation . . . 74
Ranges and sequences . . . 75
Alphabets . . . 76
Line breaks . . . 76
Numbers . . . 77
Percentages . . . 79
Units of measurement . . . 80

6 Graphs, figures, and tables **83**
Graphs . . . 83
Visualization of results . . . 93
Diagrams . . . 99
Tables . . . 100
Captions and labels . . . 111
Axes, labels, and headings . . . 111

7 Algorithms **115**
Presentation of algorithms . . . 115
Formalisms . . . 117
Level of detail . . . 118
Figures . . . 119
Notation . . . 123
Environment of algorithms . . . 123
Performance of algorithms . . . 124
Asymptotic complexity . . . 126

8 Editing **129**
Consistency . . . 130
Style . . . 130
Proofreading . . . 131
Choice of word-processor . . . 133
An editing checklist . . . 134

9 Writing up **137**
The scope of a paper . . . 138
Telling a story . . . 140

Organization . . . 143
The first draft . . . 149
From draft to submission . . . 150
Prepublication . . . 152
Theses . . . 153
A writing-up checklist . . . 155

10 Doing research **157**
Beginnings . . . 158
Shaping a research project . . . 159
Students and advisors . . . 162
Finding research literature . . . 163
Reading . . . 165
Research planning . . . 167
Hypotheses . . . 169
Defending hypotheses . . . 173
Evidence . . . 175
Good and bad science . . . 177
Reflections on research . . . 180
A research checklist . . . 182

11 Experimentation **185**
Designing experiments . . . 186
Measurements and coding . . . 189
Describing experiments . . . 191
Variables . . . 192
Statistics . . . 198
Intuition . . . 203
An experimentation checklist . . . 204

12 Refereeing **205**
Responsibilities . . . 206
Contribution . . . 206
Evaluation of papers . . . 208
Referees' reports . . . 210
A refereeing checklist . . . 213

13 Ethics **215**
Plagiarism . . . 217
Self-plagiarism . . . 219

Misrepresentation 221
Authorship 222
Confidentiality and conflict of interest 223
An ethics checklist 224

14 Giving presentations **225**
Content 226
Organization 228
The introduction 229
The conclusion 230
Preparation 230
Delivery 231
Question time 233
Slides 234
Slide tools 234
Text slides 236
Figures 237
A presentations checklist 237
Examples of slides 238

Afterword **249**

Bibliography **251**

Exercises **253**

Index **263**