

Contents

Preface to the Second Edition	xv
Preface to the First Edition	xvii
1 The Basics	1
1.1 What It Is All About	2
1.1.1 How to Write and Why to Write	2
1.1.2 The Research Paper	2
1.2 Who Is My Audience?	3
1.2.1 Identifying Your Audience	3
1.3 Writing and Thought	4
1.3.1 Clear Thinking	4
1.3.2 Research Mathematics	4
1.3.3 Various Drafts	5
1.3.4 Writing as an Enabling Activity	5
1.4 Say What You Mean, Mean What You Say	6
1.4.1 Obscure Language	6
1.4.2 Linear Versus Nonlinear	7
1.4.3 Global Issues	7
1.4.4 Language as a Weapon	8
1.5 Diction	8
1.5.1 Careful Use of Words	8
1.5.2 Attitude	8
1.5.3 Corruption of Language	9
1.5.4 What Is in a Title?	10
1.5.5 Accuracy in Writing	11
1.5.6 Alliteration	11
1.5.7 “Hence” and Related Words	12
1.5.8 Overused and Unnecessary Notation	12
1.5.9 Effective Use of Notation	13
1.5.10 Words as Objects	15
1.5.11 Singular Versus Plural	16
1.5.12 Big Words and Pretension	16

1.5.13	Foreign Words and Phrases	17
1.5.14	Flippancy and Faddish Prose	17
1.5.15	Pronouns	18
1.5.16	The Role of English	19
1.5.17	Acronyms	20
1.5.18	Jargon	20
1.6	Proofreading, Reading for Sound and Sense	21
1.6.1	Proofreading	21
1.6.2	Writing with Good Sense	22
1.7	Compound Sentences, Passive Voice	22
1.7.1	Overly Complex Sentences	22
1.7.2	Passive Voice	24
1.8	Technical Aspects of Writing a Paper	25
1.8.1	Details of Your Draft	25
1.8.2	Numbering Systems	25
1.8.3	Use of Paper and Ink	26
1.8.4	Bibliographic References	27
1.8.5	The Writing Process	27
1.9	More Details of Mathematical Writing	28
1.9.1	Effective Sentence Structure	28
1.9.2	Overuse of Commas	29
1.9.3	Miscellaneous Stipulations	30
1.10	Essential Rules of Grammar, Syntax, and Usage	30
1.10.1	Introduction	30
1.10.2	Rules of Grammar and Syntax	31
1.11	More Rules of Grammar, Syntax, and Usage	45
1.11.1	Introduction	45
1.11.2	More Rules of Grammar and Syntax	45
2	Topics Specific to the Writing of Mathematics	57
2.1	How to Organize a Paper	58
2.1.1	Title, Authors, Abstract, Etc.	58
2.1.2	Organization of the Paper	60
2.2	How to State a Theorem	62
2.2.1	Efficient and Elegant Statement of Your Results	62
2.2.2	A Better Way to State Your Result	63
2.3	How to Prove a Theorem	64
2.3.1	The Proof Is in the Pudding	64
2.3.2	Technical Stuff in the Back	65
2.3.3	Announce Your Theorems and Proofs	65
2.4	How to State a Definition	66
2.4.1	Definitions as Fundamental Units	66
2.4.2	Supply Enough Definitions	67
2.4.3	Terminology Can Unify Ideas	67
2.5	How to Write an Abstract	68
2.5.1	What Is an Abstract?	68

2.5.2	What to Include in the Abstract	69
2.6	How to Write a Bibliography	69
2.6.1	Citing Your References	69
2.6.2	Formatting Your Bibliography	70
2.6.3	Different Bibliographic Methodologies	71
2.6.4	Nicknames	72
2.6.5	Styles for Citation	73
2.7	What to Do Once the Paper is Written	74
2.7.1	What to Do with the Paper	74
2.7.2	Making Progress	75
2.7.3	Publishing Your Paper	76
2.7.4	Which Are the Best Journals?	77
2.7.5	Journal Backlog	78
2.7.6	Web Submission	79
2.7.7	Waiting for a Decision	80
2.7.8	Bringing the Matter to Conclusion	80
2.7.9	Skillful Use of \TeX	81
2.7.10	Galley Proofs	82
2.8	The Importance of Notation	82
2.8.1	The Use of Notation	82
2.8.2	New Notation	83
2.9	A Coda on Collaborative Work	83
2.9.1	Choosing Your Collaborators	83
2.9.2	Respecting Your Collaborator	84
2.9.3	Sticky Wickets	84
2.10	Recognition of Good Writing	85
2.11	Closing Thoughts on Effective Mathematical Writing	86
3	Exposition	87
3.1	What Is Exposition?	87
3.1.1	Surveys and Other Exposition	87
3.1.2	The Reader of Exposition	88
3.2	How to Write an Expository Article	89
3.2.1	Authoring Exposition	89
3.2.2	Elements of a Good Survey	89
3.2.3	Cautions Connected to a Survey	90
3.2.4	The Survey as an Entrée	91
3.3	How to Write an Opinion Piece	91
3.3.1	Formulating Your Opinion	91
3.3.2	Research for an Opinion Piece	92
3.3.3	Supporting Your Opinion	92
3.3.4	Conclusion of an Opinion Piece	93
3.4	The Spirit of the Preface	93
3.4.1	Why a Preface?	93
3.4.2	Questions that the Preface Answers	94
3.4.3	The Table of Contents	94

3.4.4	An Onerous Task	94
3.5	How Important Is Exposition?	95
3.5.1	The Significance of Exposition	95
3.5.2	Exposition as Teacher	95
4	Other Types of Writing	97
4.1	The Letter of Recommendation	98
4.1.1	Writing a Letter	98
4.1.2	Responsibility of the Letter Writer	98
4.1.3	Getting the Job Done	99
4.1.4	What to Say in the Letter	99
4.1.5	Conclusion of the Letter	100
4.1.6	Negative Feelings	100
4.1.7	The Body of the Letter	101
4.1.8	Binary Comparisons	101
4.1.9	Other Specifics in the Letter	103
4.1.10	Travesties in Letters	103
4.1.11	Responsibility of the Letter Writer	105
4.1.12	The Closing Paragraph	106
4.1.13	Letters Are Not Formulaic	106
4.1.14	Enthusiasm in Letters	107
4.1.15	Letters for Students	107
4.1.16	Declining to Write	109
4.1.17	Letters for Your Masters and Doctoral Students	109
4.1.18	Truth in Letters	110
4.1.19	Ability with English	110
4.1.20	Thorny Matters	112
4.1.21	Miscellaneous Issues	112
4.2	The Book Review	113
4.2.1	How to Review a Book	113
4.2.2	Desiderata for a Book Review	113
4.2.3	Positive and Negative Reviews	114
4.2.4	Harsh Book Reviews	115
4.3	The Referee's Report	116
4.3.1	The Art of Refereeing	116
4.3.2	Tailoring Your Report to the Journal	116
4.3.3	Reviewing a Book	117
4.4	The Talk	117
4.4.1	How to Hold Forth	117
4.4.2	What Not to Do	118
4.4.3	Ingredients of a Good Talk	118
4.4.4	Time Management	119
4.4.5	How to Finish a Talk	119
4.4.6	Types of Talks	120
4.4.7	Talk Checklist	120
4.4.8	The Philosophy of a Talk	121

4.4.9	How to Present a Proof	122
4.4.10	Entry Points and Exit Points	122
4.4.11	Prepare	123
4.4.12	Give Proper Credit	124
4.4.13	Blackboard Technique	124
4.4.14	Beamer	124
4.4.15	More on Blackboard Technique	125
4.4.16	PowerPoint	126
4.4.17	Time Management	127
4.4.18	Seminar Talks Versus Colloquium Talks	127
4.4.19	The SmartBoard	128
4.5	Your Vita, Your Grant, Your Job, Your Life	128
4.5.1	The Curriculum Vitae	128
4.5.2	Overstating the Case	130
4.5.3	Tailoring Your Vita	132
4.5.4	The Funding Picture	132
4.5.5	Preparation for Writing a Proposal	132
4.5.6	Your Credibility	133
4.5.7	Page Limits	133
4.5.8	Proposals in Math Education	134
4.5.9	Self-Evaluation and Dissemination	134
4.5.10	Applying for a Job	135
4.5.11	MathJobs	135
4.5.12	Things to Include in Your Application	135
4.5.13	The Job Visit	136
4.5.14	Teaching Topics	137
4.5.15	The Job Offer	137
4.5.16	Jobs in the Private Sector	139
4.5.17	Writing That Has an Impact	139
4.5.18	Unusual CVs	139
4.6	Electronic Mail	140
4.6.1	Communicating Electronically	140
4.6.2	The Nature of Collaboration	140
4.6.3	Email Etiquette	141
4.6.4	Important Emails	142
4.6.5	Fighting over Email	143
4.6.6	More Email Tips	143
4.6.7	The Form of an Email	144
4.6.8	Forwarding Email	144
4.6.9	Other Features of Email	145
4.7	Copyright	145
4.7.1	Protecting Your Work	145
4.7.2	Your Writing Is Copyrighted to You	146
4.7.3	Duration of the Copyright	146
4.7.4	Creative Commons	146
4.8	If You Are Not a Native English Speaker	147

4.8.1	English as the Default Language	147
4.8.2	Help with English	147
4.8.3	Gifted Writers	147
5	Books	149
5.1	What Constitutes a Good Book?	149
5.1.1	Writing a Good Book	149
5.1.2	How the Book Unfolds	150
5.1.3	Organization	151
5.1.4	Hard Work	151
5.1.5	Attention to Detail	152
5.2	How to Plan a Book	152
5.2.1	First Teach a Course	152
5.2.2	Lecture Notes	153
5.2.3	The Value of a Collaborator	153
5.2.4	Global Vision	153
5.3	The Importance of the Preface	154
5.3.1	Prefatory Remarks	154
5.3.2	God Is in the Details	154
5.4	The Table of Contents	154
5.4.1	The Value of the TOC	154
5.4.2	Formatting the TOC	155
5.5	Technical Aspects: The Bibliography, the Index, Appendices, etc.	155
5.5.1	The Utility of L ^A T _E X	155
5.5.2	Creating the Index	156
5.5.3	Using the Computer to Make the Index	156
5.5.4	Creating the Bibliography	158
5.5.5	Appendices	158
5.6	How to Manage Your Time	
	When Writing a Book	158
5.6.1	Time Is on Your Side	158
5.6.2	Tunnel Vision	159
5.6.3	The Halmos Spiral Method	160
5.6.4	Rewriting	160
5.6.5	Final Details	161
5.7	What to Do with the Book Once It Is Written	161
5.7.1	Putting Your Book Before the Public	161
5.7.2	Submitting to a Publisher	161
5.7.3	What the Publisher Needs to Know	162
5.7.4	Reviews of Your Book	163
5.7.5	Evaluating the Reviews	163
5.7.6	Final Revisions	164
5.7.7	Electronic Aspects of Publishing	164
5.7.8	Electronic Sticky Notes	164
5.7.9	How the Publisher Processes Your Book	165
5.7.10	The Burden Is on You	165

5.7.11	Concerns of the Copy Editor	165
5.7.12	Costs	166
5.7.13	The End of Your Role	166
5.7.14	Putting the Book to Bed	166
5.7.15	Repro Copy	166
5.7.16	Pricing of a Book	167
5.7.17	Marketing Your Book	169
5.7.18	Author Frustrations	169
5.7.19	Advertising Your Book	170
5.7.20	Book Contracts	170
5.7.21	The <i>Textbook and Academic Authors Association</i>	171
5.8	Royalties	171
5.8.1	Compensation for Your Work	171
5.8.2	Negotiating the Royalty Rate	173
6	Writing with a Computer	175
6.1	Writing on a Computer	175
6.1.1	Technology and Writing	175
6.1.2	Writing on a Computer	176
6.1.3	Finding Files on Your Hard Drive	177
6.1.4	Multiple Versions of Your Work	177
6.1.5	Text Editors	178
6.1.6	Handwritten Manuscripts	179
6.1.7	Backups	179
6.1.8	Using the Cloud	180
6.2	Word Processors	181
6.2.1	Processing Words	181
6.2.2	Shortcomings of Word Processors	182
6.2.3	A Word Processor is WYSIWYG	183
6.2.4	Non-Universality of Word Processors	183
6.3	Using a Text Editor	184
6.3.1	What Is a Text Editor?	184
6.3.2	Other Tools	184
6.3.3	Files Created on Text Editors	185
6.3.4	The Importance of \TeX	185
6.3.5	Variants of the \TeX Software	185
6.4	Spell-Checkers, Grammar Checkers, and the Like	186
6.4.1	Spell-Checkers	186
6.4.2	Misuse of Spell-Checkers	187
6.5	What Is \TeX and Why Should You Use It?	188
6.5.1	The Revelation that Is \TeX	188
6.5.2	\TeX is Not a Word Processor	188
6.5.3	Typesetting Ordinary Prose	188
6.5.4	Compiling a \TeX File	190
6.5.5	Do Not Use a Word Processor	190
6.5.6	\TeX Preview	190

6.5.7	Graphics in $\text{T}_{\text{E}}\text{X}$	191
6.5.8	The Flexibility of $\text{T}_{\text{E}}\text{X}$	191
6.5.9	Creating Graphics	192
6.5.10	Front Ends for $\text{T}_{\text{E}}\text{X}$	192
6.5.11	Different $\text{T}_{\text{E}}\text{X}$ Outputs	193
6.5.12	Spivak's Fonts	194
6.5.13	\LaTeX Macros for Tagging	194
6.5.14	Books About $\text{T}_{\text{E}}\text{X}$	195
6.5.15	$\text{T}_{\text{E}}\text{X}$ and the Production Department	195
6.5.16	$\text{T}_{\text{E}}\text{X}$ Macros	195
6.6	Graphics	196
6.6.1	Creating Graphics	196
6.6.2	Ideas of Edward Tufte	197
6.6.3	Symbol Manipulation Software	197
6.7	The Internet and Electronic Journals	197
6.7.1	What About Electronic Publishing?	197
6.7.2	Hypertext	198
6.7.3	Electronic Journals	198
6.7.4	Open Access	198
6.7.5	Electronic-Only Journals	200
6.7.6	Free Books on the Internet	200
6.8	Collaboration by Email, Uploading, Downloading	201
6.8.1	Email Collaboration	201
6.8.2	Doing Your Work in $\text{T}_{\text{E}}\text{X}$	201
6.9	Mathematical Collaboration in Today's World	202
6.9.1	Mathematical Collaboration	202
6.9.2	DropBox	202
7	The World of High-Tech Publishing	205
7.0.1	The Impact of the Internet on Publishing	206
7.1	Mathematics on the Web	206
7.1.1	Posting Your Work on the Web	206
7.1.2	Preprint Servers	207
7.1.3	arXiv	207
7.1.4	Posting Papers on arXiv	209
7.1.5	Front for the arXiv	210
7.1.6	Many Versions of Your Paper	210
7.2	MathSciNet	211
7.2.1	<i>Mathematical Reviews</i> online	211
7.2.2	MathSciNet and zbMATH	212
7.2.3	Google Scholar	212
7.2.4	Mathematics Indexing Services	212
7.3	Personal Web Pages	214
7.3.1	Your Personal Web Page	214
7.3.2	Using Word to Create a Web Page	214
7.3.3	Hyperlinks	214

7.4	Mathematical Blogs and Related Ideas	215
7.4.1	Blogs	215
7.4.2	Blogs, Chat Rooms, and Wikis	215
7.4.3	Hundreds of Collaborators	216
7.4.4	MathOverFlow	216
7.4.5	polymath	216
7.4.6	More on Blogs	216
7.4.7	Chat Rooms	217
7.4.8	The Wiki page	217
7.4.9	Wikipedia	218
7.4.10	WikiMath	218
7.5	Facebook, Twitter, Instagram, and the Like	219
7.5.1	Social Media	219
7.5.2	Social Media and Mathematics	220
7.5.3	Social Media and Blogs	222
7.5.4	Variants of Social Media	223
7.6	Print-on-Demand Books	223
7.6.1	Instantly Produced Books	223
7.6.2	The Espresso Book Machine	224
7.6.3	CreateSpace	225
7.6.4	Print-on-Demand Publishing	225
8	Closing Thoughts	227
8.1	Why Is Writing Important?	227
8.1.1	The Case for Good Writing	227
8.1.2	Do We Know How to Write?	228
	Bibliography	229
	Index	232