Foreword	xvii
Acknowledgments	xix
Goals of This Book	xxi
PART 1: DESIGNING EXCEPTIONAL SCIENCE PRESENTATIONS	1
1 Scientists as Designers	3
Necessary Ingredients in any Science Presentation	4
Doesn't Good Scientific Content Speak for Itself?	5
Any Scientist Can Be a Designer	5
What Is Design?	6
What Design Is Not	7
Design Is Ultimately about the Audience	8
Embrace Simplicity	9
About "The Rules"	10
Appreciate the Design around You	11
Appreciate the Presentations of Other Scientists	11
Design Is a Continuous Process	12
Summary: Don'ts and Dos	13
2 Design Goals for Different Presentation Formats	15
Defining the Goals of Presentation Formats	16
Advantages and Disadvantages of Presentation Formats	18
Reasons for Success and Failure	19
Design a Presentation with Your Format in Mind	20
Summary: Don'ts and Dos	20

3 Twenty-One Characteristics Shared by Exceptional Presenters	21
1 Choose to <i>Design</i> a Presentation	22
2 Present to Communicate a Message	22
3 Know Your Target Audience	23
4 Demonstrate Care and Respect for Your Audience	24
5 Declare the Question or Goal that Drives Your Science	24
6 Inspire Interest in Your Subject	25
7 Demonstrate Expertise	25
8 Introduce Your Background and Methods with Clarity	25
9 Balance Details with the Big Picture	26
10 Highlight One to Three Take-Home Points	26
11 Follow Time Restrictions	26
12 Radiate Enthusiasm	27
13 Demonstrate Accessibility and Friendliness	27
14 Read and Respond to Your Audience	27
15 Design Visual Elements with Care	28
16 Present Information One Piece at a Time	29
17 Let Your Narrative Lead Your Visuals	29
18 Master Your Presentation Technology	30
19 Master the Written English Language	30
20 Be Yourself	31
21 Transform Anxiety into Positive Energy	31
Summary: Don'ts and Dos	32
PART 2: VISUAL ELEMENTS IN SCIENCE PRESENTATIONS	35
4 Color	37
Why We Use Color	38
Color Gone Wild	39
Describing Color	40
The Color Wheel	42
Choosing Color Combinations Using a Color Wheel	44
Warm and Cool Colors	46
Using Color to Highlight	47

	Emotional Associations of Different Colors	48
	Background Colors and Contrast	49
	Color in a Colorless Environment	50
	Black and White Are Colors, Too	51
	How Computers Specify Color	52
	What You See Might Not Be What You Get	53
	Summary: Don'ts and Dos	54
5	Typography	55
	Decisions about Text Matter	56
	Dissection of a Font	57
	Personality of Fonts	58
	Sizing Up a Font	60
	Casing	61
	Legibility	62
	Typesetting	63
	Bullets	64
	Numbers	66
	Summary: Don'ts and Dos	67
6	Words	69
	Words Matter	70
	Avoid Wordiness	71
	Colloquialism and Slang	72
	Singular versus Plural	73
	Active versus Passive Verbs	74
	Verb Tense	75
	Commonly Misused Words	76
	Understand the Distinctions between Similar Words	78
	The Burden of Proof	80
	Latin Abbreviations	81
	Writing about Numbers	82
	Summary: Don'ts and Dos	84

vii

7	Tables	85
	Anatomy of a Table	86
	When to Use a Table	88
	Tables Differ among Different Presentation Formats	89
	Logically Formatting a Table	90
	Text and Number Alignment	91
	Gridlines on Tables	92
	Summary: Don'ts and Dos	93
8	Charts	95
	When to Use a Chart	96
	Categories of Charts	97
	Anatomy of a Chart	98
	The Best Chart Titles are Conclusions	99
	About Figure Legends	100
	2D Charts are Almost Always Better than 3D	101
	General Design Considerations for Charts	102
	Designing a Line Chart	104
	Designing a Bar Chart	106
	Designing a Histogram	108
	Designing a Scatterplot	110
	Designing a Pie Chart	112
	Help Your Audience Visualize What is Most Important	114
	Reduce Clutter Wherever Possible	115
	Summary: Don'ts and Dos	116
9	Diagrams	117
	When to Use a Diagram	118
	Clearly Define the Purpose of a Diagram	119
	General Design Considerations for Diagrams	120
	Considerations for Labeling Diagrams	122
	Designing Venn Diagrams	124
	Designing Flowcharts	125

	Designing Tree Diagrams	126
	Designing Timelines	127
	Designing Pictorial Diagrams	128
	Designing Maps	130
	Designing Sequence Maps	131
	Designing Network Diagrams	132
	Designing Pathway Diagrams	133
	Designing Procedural Diagrams	134
	Summary: Don'ts and Dos	135
10	Photographs	137
	Why Show a Photo?	138
	Assume That Representative Photographic Data Will Be Harshly Judged	139
	Adjust Data Images <i>Ethically</i>	140
	Labeling Photographic Images	141
	Be Picky about Finding Images	142
	Crop Photos to Emphasize What Is Important	144
	Use the Rule of Thirds to Improve Your Images	145
	Adjust Image Settings to Your Needs	146
	Image File Formats	148
	Ideal Image Resolutions for Presentation Formats	150
	Summary: Don'ts and Dos	150
PA	RT 3: WRITTEN PRESENTATIONS	151
11	Ten Techniques for Improving Scientific Writing	153
	1 Clearly State Your Scientific Topic and Goal	154
	2 Only Write Statements That Can Be Interpreted in a Single Way	155
	3 Order Information Consistently	155
	4 Use Strong Topic Sentences	156
	5 Use Transitions to Unite Your Paper	156
	6 Avoid Wordiness	157
	7 Own and Use a Style Guide	157

8 Avoid Reader Turn-Offs	158
9 Know that Good Writing Is Great Editing	159
10 Seek Feedback	159
Summary: Don'ts and Dos	160
12 Research Articles	161
The Purpose of a Research Article	162
The Structure of a Research Article	163
The Title Should Emphasize What is Most Important	164
The Abstract	165
The Introduction	166
Materials and Methods	167
The Results	168
Marrying Figures with Text	169
The Discussion	170
Common Reasons for Rejection	171
Summary: Don'ts and Dos	172
13 Review Articles	173
The Purpose of a Review Article	174
Different Methods of Presenting the Literature	176
Help Your Readers	177
Advice on the Writing Process	178
Summary: Don'ts and Dos	179
14 Research Proposals	181
The Purpose of a Research Proposal: To Justify	182
Pleasing Your Reviewers	183
The Structure of a Research Proposal	184
The Logic of Your Experimental Design	185
Enhance the Visual Design of Your Proposals	186
Summary: Don'ts and Dos	188

PART 4: SLIDE PRESENTATIONS	189
15 The Use of Slides in Oral Presentations	191
The Purpose of Slides as Presentation Tools	192
Slides are for the Audience, Not the Speaker	193
Design a Slide Presentation from an Audience's Perspective	194
Know Your Audience	195
Create Ideas, Not Slides	196
The Relationship Between Slides and Oral Delivery	198
How Many Slides?	199
Exceptional Presentations Require Time and Effort	200
Summary: Don'ts and Dos	201
16 The Structure of a Slide Presentation	203
A Good Scientific Talk Is a Good Scientific Story	204
Set the Tone of Your Talk with a Title Slide	205
Start a Talk by Progressing from General Questions to Specific Goals	206
Clearly State Your Scientific Goal and Why It Is Worth Pursuing	207
Prepare for Inevitable Shifts in Attention	208
Organize the Presentation of Data into Individual Segments	209
Unite Sections of a Talk Using a "Home Slide"	210
Deliberately Emphasize One to Three Take-Home Messages	212
End a Talk by Transitioning from Specific Details to a Broader Scientific Context	213
Acknowledgments	214
Answer Questions While Showing a Summary Diagram	215
Outline of a Structured Scientific Talk	216
Summary: Don'ts and Dos	218
17 Visual Elements in Slide Presentations	219
Visual Elements on Slides	220
Add Design Instead of Decoration	221
Backgrounds	222

xi

	Color Considerations for Slides	224
	Assemble a Unifying Tone Using a Color Palette	225
	Fonts Must Be Legible	226
	Keep Text to a Minimum	227
	Minimize the Use of Lists and Outlines	228
	Use Slide Titles to Make a Point	229
	Optimize Tables and Charts for Slides	230
	Try to Only Present One Table or Chart per Slide	231
	Animate Information in Tables and Charts for Maximum Impact	232
	Diagrams in Slides	233
	Photographs in Slides	234
	Video: The Ultimate Presentation Tool	236
	Summary: Don'ts and Dos	238
18	Slide Layout	239
	The Importance of Slide Layout	240
	Avoid Universal Slide Templates	241
	Design a Natural Flow of Information	242
	Emphasize Important Elements	244
	Align Visual Elements for Harmony	246
	Align Elements Using a Grid	247
	Embrace Simplicity	248
	Split Busy Slides into Many Slides	249
	Achieve Harmony with Photographs	250
	Summary: Don'ts and Dos	251
19	Slide Animations and Transitions	253
	The Benefits of Using Slide Animation Effects	254
	Don't Be an Animation Show-Off	255
	Use Animation to Introduce Concepts at a Time of Your Choosing	256
	Use Animation to Relate the Big and the Small	257
	Animate Movements Naturally	258
	Animate Diagrams to Bring Dynamic Processes to Life	259

	Use Animation to Direct the Audience's Attention	260
	Use Slide Transitions Minimally for Emphasis	261
	Use Transitions to Create Scenes and Panoramas	262
	Summary: Don'ts and Dos	264
20	Delivering a Slide Presentation	265
	To Seem Like a Natural, Design and Rehearse	266
	Be Present	267
	Be Visible and Audible	268
	Cater to a Specific Audience	269
	Eliminate Verbal Distractions	270
	Don't Use Slides as Presentation Notes	271
	Soliciting and Answering Audience Questions	272
	Dealing with Anxiety	273
	Summary: Don'ts and Dos	274
21	Using Technology to Present Like a Professional	275
	Know How to Control Your Presentation	276
	Bring Your Own Power and Projection Cords	277
	Calibrating a Laptop with a Projector	278
	Alternate Display Settings	279
	Learn the Light Switch	280
	Keeping Track of Time	281
	Using a Laser Pointer	282
	Using a Remote Slide Advancer	283
	Considerations for Presenting While Traveling	284
	Considerations for Presenting with Someone Else's Computer	284
	Prepare for the Worst	284
	Summary: Don'ts and Dos	285
27	2 Considerations for Different Categories of	
22	2 Considerations for Different Categories of Slide Presentations	287
22	2 Considerations for Different Categories of Slide Presentations The Research Seminar	287 288

The Data Blitz	290	
The Course Lecture	291	
The Lab Meeting Presentation	292	
The Journal Club	293	
Summary: Don'ts and Dos	294	
PART 5: ORAL PRESENTATIONS WITHOUT SLIDES	295	
23 Presenting Without Slides	297	
You Never Needed Slides in the First Place	298	
Communicating Structure Without Slides	299	
Plan Figures Ahead of Time	300	
Maintaining an Audience's Attention	301	
About Presentation Notes	302	
Summary: Don'ts and Dos	303	
24 Considerations for Different Categories of		
Oral Presentations Without Slides	305	
The Chalk Talk	306	
The Round Table Presentation	307	
The Elevator Speech	308	
The Speaker Introduction	309	
Summary: Don'ts and Dos	310	
PART 6: POSTER PRESENTATIONS	311	
25 The Structure of a Scientific Poster	313	
The Purpose of Poster Presentations	314	
The Paradoxes of a Scientific Poster	314	
The First Step: Writing an Abstract	315	
The Sections of a Poster	316	
The Importance of Reducing Text	318	
Advice on Composing the Content of a Poster	320	
Summary: Don'ts and Dos	321	

26 The Design and Layout of a Poster	323
There is No Single Way to Design a Poster	324
An Initial Consideration: The "Old-School" Poster	325
Design an Intuitive Order of Information	326
Use Borders to Segregate Sections	327
Make Your Words Easy to Read	328
Let Your Text and Figures Breathe	329
Background Colors	330
Align Elements for Harmony	331
Eliminate Extraneous Elements	332
Choosing Glossy versus Matte Prints	332
Summary: Don'ts and Dos	333
27 Presenting at a Poster Session	335
Posters are for Personal Interactions	336
Preparing for the Presentation Venue	336
Displaying Your Poster	337
Bring a Poster Repair Kit	338
Giving a "Walkthrough"	339
Knowing Where You Stand	340
Looking (and Smelling) Good	341
Supplementary Information	342
Summary: Don'ts and Dos	343
APPENDICES	345
Appendix A: Recommendations for Further Reading	347
Appendix B: Learning to Use Illustration and Presentation Software	349
Appendix C: Thoughts on How to Design a Presentation from Scratch	351
Appendix D: Thoughts on Using Design Principles to Market Yourself	353
Index	355