

Garland Science Guidelines for New Authors Writing a Textbook

Welcome to the Garland Science family of authors. In this packet you will find materials that will guide you in the writing and development of your book.

We asked Eleanor Lawrence, developmental editor of such titles as Charles Janeway's *Immunobiology*, Peter Parham's *The Immune System*, and Lewis Wolpert's *Principles of Development* (Oxford University Press), for her advice to new textbook authors:

I think the best thing for you to do regarding the writing is just to get started. You won't have any idea of how long things are going to take and how it will best be fitted into your busy schedule until you do. Start on something that interests you and that you'll find relatively easy - whether it's in the middle of the book doesn't matter.

One useful rule for textbook writing that is worth remembering is not to tell the readers anything new without telling them in some way WHY you are telling them this and how it fits into the larger picture. You may know, but they don't. Also when you start on a new topic make it clear that you have finished one line of thought and are now starting on something else. And make sure that each line of thought has a clear take-home message and that the logic of the exposition is clear. Don't put too many ideas into one sentence for example. It's probably easier at the end to smooth out and condense something that's clear but a mite inelegant, than to have to unpack something that's too dense and cryptic. 'Transparency' is a favorite buzzword with editors. Unlike a scholarly review or monograph, the reader shouldn't have to puzzle anything out for themselves in a textbook. Even if the brighter readers would be able to draw the right conclusions and make the right connection, the first time round they have no way of knowing that they are right.

As to planning things for the longer term, the only golden rule is that everything takes longer than you think it will, so if you do have some time now, then the sooner you can get started, the better. You'll soon find out how much time particular tasks take, and whether it's best for you to try and set aside blocks of time to concentrate on getting something completed, and then forget about it for a bit, or whether you prefer to do it in continuous small amounts. It is always worth splitting the task up into identifiable manageable bits, whichever way you prefer to work.

We are very excited to work with you on this new book project, and look forward to getting started!

All best,
Garland Science

Guidelines for Manuscript Preparation

- Garland Science books use the *Chicago Manual of Style* for spelling, grammar, and punctuation
- As you work through your files, be sure to save the files often
- Pages should be numbered in the header
- Format
 - Language: US English
 - Word Processing Program: Microsoft (MS) Word
 - Paper Size: 8.5" x 11"
 - Margins: 1"
 - Justified Left
 - Font Style: Times New Roman
 - Font Size: 12-point
 - Spacing: Double

File Submission

- You should aim to deliver the following files for each chapter:
 1. Chapter text, with boxes and tables in separate sections after the main text
 2. Figure legends, including box figure legends
 3. Figure sketches
 4. If the book contains many Greek and mathematical symbols, we may ask you to supply a PDF of the entire manuscript, for verification of symbols and equations
- In the file names, it would be useful to include your initials and the date of your draft when naming the chapter. Also, indicate the stage of writing the draft falls under, like “post-review,” “author comments,” “copyedited,” etc. For example, Biochemistry_Ch 2 Text_Copyedited_JS 15March13

Heading Structure

- Decide on exact structure with your editor and use it consistently in every chapter – the three-level typically used for Garland Science books is based upon a formula invented by James Watson for the first edition of *Molecular Biology of the Gene*:
 - [A-head] Chapter title
 - Numbered (e.g. Chapter 5 Evolutionary Variation in Proteins)
 - [B-head] Section heading
 - These are used to group several concepts headings, are not usually declarative, and can be numbered (e.g. Structural Variation in Proteins)
 - [C-head] Concept heading
 - These are declarative, making short, simple statements, and can be numbered (e.g. Proteins retain a common structural core as their sequences diverge)
 - Aim for ~1400 words and two figures per [C-head]; if any [C-head] has three or more figures, consider whether they are all necessary, or whether the [C-head] needs to be expanded and split into two
 - This principle forces a conceptual focus on the narrative but allows some flexibility in the logical flow

Length Calculator

- The book should typically fit within a lesson plan, with each chapter accounting for a course assignment of one week

- Be aware of the word count as you construct your chapters; in order to reach the desired chapter length, consider the limitations of the printed page. Chapters may be shorter than 42 typeset pages but ideally not much longer
 - Assuming 3 figures (with their legends) fit on one typeset page; 42 total figures equal 14 pages
 - Assuming 700 words fit on one typeset page; 19,600 total words equal 28 pages (figure legends are not included in the word count)

Book and Chapter Elements, in order of appearance

Front matter

- Preface – usually written in later stages and important for marketing; guidelines to be provided later
- Acknowledgments – maintain and update your list as you go, providing full names and affiliated institutions
- Table of Contents

Introduction

- Within each chapter, include an opening paragraph before the first B-head that gives an overview of the chapter as a whole and serves as a transition from the preceding chapter

Learning Objectives

- Decide with your editor if the chapter will have Learning Objectives at the beginning of each chapter, and if so, how many there will be (ideally 5)
- Learning Objectives should broadly present the main concepts a student should know after reading the chapter

Glossary Terms

- Should be bolded and briefly defined in the text at their first mention
- Never define or introduce a glossary term in a figure legend
- Use italics sparingly, and only for emphasis

Naming Elements and Call-Outs

- All elements (figures, boxes, tables, equations) require an in-text call-out
- The first mention should be bolded
- When referencing elements in the main text, write them in bold and double-number them sequentially with the chapter number and a serial number, e.g. **Figure 1.2, Box 2.3, Table 3.1, Equation 4.7**
 - Subsequent references to an element should not be in bold; when these references are parenthetical, they should be written as follows: (see Box 2.3)
 - Always spell out names, e.g. Figure 2.5 rather than Fig. 2.5
- All figures must be referenced: if referring to a part of the figure, refer to each part of the figure
- Only boxes themselves should be referenced in the main text; i.e., refer to box figures only within their home box
- After a paragraph in which a new element is initially called out, skip a line and insert a placeholder as follows:

<<Figure 2.9>>

- This will inform the typesetter where to place the element on the page

Equations, Formulae, Structures, and Symbols

In-line Mathematical Equations

- All in-line text equations should be keyed in rather than pasted as an image, so that we avoid formatting problems and the possibility of introducing transcription errors

$$\Delta G = \Delta G^\circ + RT \ln [B]/[A]$$

- Decide with your editor whether you want fractions in equations to be formatted

as $\frac{x}{y}$ or x/y and make sure to be consistent throughout the text

Complex Mathematical Equations

- Create mathematical symbols and formulae using Math Type or Equation Editor
- Place equations on a new line, with a blank line above and below
- Put the equation number in parentheses at the end of the line on which the equation appears
- Be sure to call out each equation in the main text

Chemical Structures

- Create chemical structures using ChemDraw and provide them as individual TIFF files (300 dpi)
- Use a double-headed arrow for the equilibrium arrow
- Place chemical structures on a new line, with a blank line above and below

Macromolecular Structures

- Macromolecular structures, created using programs such as PYMOL, should be provided as EPS files
- When drawing from the Protein Data Bank (PDB), coordinates should also be provided

Greeks and Symbols

Because we typeset using the program InDesign, the following standards are required: In chapter text, tables, and figure legends, use a preceding backslash (\) and spell out all Greek letters (distinguish between uppercase and lowercase Greek letters as below), direction symbols, and other symbols that do not appear on a standard keyboard. Also highlight these symbols in a conspicuous background color. This will ensure that no special characters are dropped during the file conversion process. Our production team will use a search-and-replace function to ensure all symbols are accurately substituted.

Some examples:

<code>5\prime\rightarrow3\prime</code>	5'→3'
<code>Hb-\alpha 1</code>	Hb- α 1
<code>\angstrom</code>	Å
<code>\lesseqqual</code>	≤
<code>\DELTA</code>	Δ
<code>\delta</code>	δ



Cross-References

- References to sections and elements from other chapters
- Forward references are strongly discouraged
- Highlight cross-references in yellow, so they can be verified during editing
- Format: (see Figure 11.4)

Figures

- See the “Notes for Garland Authors on the Illustration program” on [page 8](#)

Figure Legends

- Include a separate document with figure legends associated with each chapter
- Bold the figure number and first sentence/title
 - Include both the A-number and serial number; e.g., Figure MB8.1/8.1 For explanation of A-numbers, see separate figure guide
- The legend text should be a manageable length, with approximately 100 words per legend
- The legend must explain the figure fully: everything that appears in the figure should be mentioned in the legend, and all parts/panels should be called out with descriptions. See the “Notes for Garland Authors on the Illustration Program” on [page 8](#) for further information on how to construct a good figure legend.
- Avoid making cross-references to the main text or to another figure, table, or box unless it is essential to do so. Cross-references to other elements should not take the place of adequate descriptions in the legends

Credit Lines

- When reproducing or modifying a figure from another source, a parenthetical credit line must be included at the end of the legend
- Provide all available bibliographic information for each source as follows:
 - From individuals: Courtesy of [Full Name].
 - Unmodified images or micrographs: From [source information].
 - Redrawn or modified images or a combination of unmodified images/micrographs and redrawn images: Adapted from [source information].
- When the figure has more than one part, credit each part separately, e.g. A, courtesy of [...]; B, adapted from [...]; C, from [...]

Permissions

- Permission is required for illustrations that reproduce or adapt previously published illustrations or data
- Discuss with your editor who will be responsible to coordinate the process and obtain the requisite permissions
- Give all source information required to gain permission to your editor, including full bibliographic information and figure number or page number in the original source
- For journals for which Garland does not have a subscription, we may request that you provide PDFs of figure and table source material

Instructions for Authors Responsible for Permissions

- Permission must be gained from the copyright holder – most have electronic submission forms on their websites; use the Garland Science permission form (provided separately) in other cases

Boxes

- Boxes contain information that is relevant but not vital to understanding the content of the main text
- Discuss with your editor which type(s) and specifications of boxes your book will use
- Boxes should be no longer than two typeset pages (as calculated by 700 words/page, 3 figures/page)
- Too many boxes break up the text visually and thematically, making it difficult for the student to follow. Make sure that they are spaced appropriately in the main text
- Avoid using text boxes and other unadvised special formatting
- Boxes should have titles, which are to be bolded
- Figures in boxes should be numbered separately from figures in the main text, either as “box figures” (e.g., Figure 1) or as regular figures with triple-numbering according to the sequence of figures within each box (e.g., Figure 4.2.2); discuss this with your editor
- Be sure to call out each box in the main text and insert a placeholder as follows:
<<Box 2.1>>
- Place box text at the end of the chapter manuscript file, after Further Reading

Tables

- Tables should have titles, which are to be bolded; label tables as tables, not as figures
- Use the table creation tool in MS Word
- Be sure to call out each table in the main text and insert a placeholder as follows:
<<Table 3.1>>
- Place tables at the end of the chapter manuscript file, after Further Reading and boxes

Chapter Summary

- Include one or two closing paragraphs explaining the conclusions that can be drawn from the chapter
- Be mindful of transitions between chapters and consider briefly connecting them in chapter conclusions

Key Concepts

- Decide with your editor if the chapter will have Key Concepts at the end of each chapter, and if so, how many there will be (ideally 5-10)
- Key Concepts should be succinct and cover only one specific idea per entry
- Should agree with Learning Objectives, if there are any

Further Reading

- At the end of each chapter, list papers and books of interest on the chapter’s topic; this is not necessarily a bibliography of your chapter
- Discuss with your editor whether the book will include annotated references, and if you will group sources by chapter, section, or concept head
- Include texts that go into more detail on a particular topic or explain basic material not covered in your book, in a way that will be understandable to your intended audience
- Include information on the latest edition of cited books
- Avoid references to web sites

- As you write the chapter, maintain a detailed list of all sources referred to in the manuscript

Problems and Questions

- It is increasingly important to students and instructors that textbooks have problems/solutions (quantitative) and questions/answers (conceptual); discuss with your editor whether you are going to have these elements
- Supply the worked-out solutions and answers for students and/or instructors in a separate Word file at the time of manuscript submission
- Discuss with your editor which types of assessment are the best for students

Back Matter

- Index – instructions to come separately
- Glossary – see below for glossary compilation guide

Reference material that is too long to be placed at the front of the book should be placed in appendices after the main text, e.g. guides to metabolic pathways, common amino acids, common units and measurements, etc.

Guidelines for Compiling a Glossary

- Start with the glossary terms that have been bolded throughout the text; all terms in the glossary should be bolded and defined at their first mention in the text
- You may want to add a few other terms that might not have been bolded but are used throughout the book
- Organize the glossary terms by chapter
- Write definitions for these terms, organized by chapter, at the stage of first pages; one to two sentences per term can usually suffice
- Remember not to use the term itself in the definition

Format

- Glossary term entries are best written starting with a lower-case letter as the default option so that proper names that take capitals can be clearly indicated. If all terms start with a capital letter, the student can't tell which should be capitalized and which should not
- When an abbreviation is given, it should be included in brackets after the glossary term and then have its own entry. If the abbreviation would be some way from the main entry alphabetically, write as “xxxx. see xxxxxx”

Bear in mind that a Glossary is not intended to be a dictionary – its purpose is to be a study aid, and so, as long as nothing is misleading, you don't need to be completely comprehensive. Keep the definitions as simple as possible and avoid using any technical term that is not itself explained in the Glossary.

Notes for Garland Authors on the Illustration Program

These notes outline the steps involved in generating the artwork for a Garland text and how you can help our illustrators who will produce the final versions for print and e-format. These are not meant to be comprehensive, but represent general guidelines based on the accumulated experience of the illustration team working on successful science texts.

CREATING YOUR ART MANUSCRIPT

You should generate your figure manuscript and accompanying legends at the same time as the text manuscript. A good way to determine how to illustrate your book is to think of the figures as a storyboard that tells the chapter's story in a series of images. Keep in mind that figures should support the main text and not introduce new concepts to the reader. Each of the main concepts introduced in a chapter should be represented by a figure illustrated at the appropriate level. You should aim for a maximum of 2 illustrations per C-heading section (see Author Writing Guidelines for explanation of heading structure).

Individual figures should not present too much information. This is especially pertinent for figures adapted from journals. Figures should not rely on wordy descriptions in the illustration itself, but should instead be visually driven. Complicated figures are off-putting for the reader and not useful for learning. An individual figure should represent one main concept and assume the reader only knows the subject matter that you've taught them up until this point in the text. Avoid introducing concepts they have yet to learn from your book and also be sure to question whether a student would understand how to interpret the figure.

You'll want the text callout and the figure to be on the same page, or at least the same double spread, wherever possible. A series of smaller, simpler figures with short legends can often be more effective and easier to accommodate than a large, multipart figure. If you *are* using a multipart figure to explain a concept, label each part as A, B, C. A multipart figure should still only explain one concept but may be separate in form and description; for example, a figure may have part A that shows an experimental setup and part B that shows the graphed results.

Figure numbering system

Garland uses a double-numbering system which works as follows: every figure is assigned an "A" number which travels with the figure regardless of whether it is moved within or between chapters. This "A" number is the figure's unique identifier used by the illustrator and typesetter to identify all figure files. The second number is the serial number, which indicates where in the chapter the figure should fall.

- The legend must explain the figure fully. Do not refer to the main text or other chapter elements in lieu of explanation (that is, avoid cross-references in figure legends). There shouldn't be any elements in the figure that aren't explained in the legend or vice versa.
- If the figure is a multipart figure, all the parts must be called out in the legend and each described fully.
- For borrowed or adapted figures, write your legends from scratch for a student audience.

Labels

- Make sure to appropriately label all the elements drawn in a figure. It is important to direct the reader to the appropriate icons in a figure or structures in an image.
- Be consistent in labeling. Choose a convention for terms and abbreviations you use. Don't overly rely on abbreviations in your figure labels. Abbreviations should be standard abbreviations in your field and defined and consistently used in your book. Terminology should also be consistently used; for example, choosing intracellular vs cytoplasmic vs cytosolic. This is especially important when adapting figures from another source.
- Consider rewriting a label on a graph axis if it uses technical language or jargon that will not be used in the book and be sure to include the unit of measurement. Consider removing the error bars on the graph itself.

Is your art ready for the reader?

As you work on your manuscript, ask yourself these questions to evaluate whether your figure is ready for the reader:

- Is there material in the figure that is not covered in the legend? If so, does it need to be deleted from the figure or added to the legend?
- Is there material in the legend that is not covered in the figure? If so, does it need to be deleted from the legend or added to the figure?
- Does the figure coordinate with the main text? Is there material covered in the figure and accompanying legend that is not in the text? If so, does the additional information need to be added to the text or removed from the figure and legend?
- Are all elements properly labeled in the figure? Do all the terms used in the figure correspond with concepts in the text? For graphs: Are axes on the graph labeled properly and include units of measurement? Are error bars necessary?
- Would a student learning the material for the first time understand the terminology? Is the concept clearly explained for the student?
- Is each major concept in the chapter represented by a figure?

GETTING THE BEST OUT OF YOUR ILLUSTRATOR

Generating a figure manuscript

Original rough drafts can be hand drawn or prepared with an illustration program or PowerPoint, if preferred. Creating the figures yourself helps ensure the final figure will contain exactly the elements that should be present without extraneous information. An illustrator will be extremely literal and won't necessarily be able to render what you intend to show by reading the figure legend. Assume that the illustrator will need detailed instructions and annotations that do not require a science background to interpret.

If you supply figures from a journal or book to be adapted by the illustrator, please mark clearly on the figure itself what is to be omitted or changed. Cross-out elements that are not needed, write new labels where necessary (being consistent with terminology used in your book), and write detailed visually descriptive direction to the illustrator on the figure manuscript itself using clear and nonscientific descriptions. If writing directions to the illustrator by hand, be clear that it is not part of the figure by drawing a circle around the instructions. If marking up a PDF or PowerPoint, please use a text box or the commenting feature to write the directions to the illustrator.

Ideally, you could trace the journal image either by hand or in some art illustration program, thereby automatically excluding any elements that an illustrator wouldn't need to draw or changing the icons used if you prefer a different look for your book.

Please make sure that written labels are legible, especially when using words that may be unfamiliar to your illustrator. Be sure to indicate if there is a hierarchy of labeling and positioning on the figure. The illustrator will not know this. Clearly indicate to the illustrator where size will be important to the concept being illustrated.

Iconography

If there are numerous diagrams with recurring elements in the book (such as protein kinases in signaling diagrams), Garland likes to identify such elements by a consistent shape, so that diagrams taken from different sources look consistent, and pathways don't end up as featureless masses of colored ovals and circles. Using shape as well as color to distinguish the different elements makes diagrams easier to follow. If you can identify elements that will be used repeatedly, such as the depiction of particular types of nerve or synapse, you and the illustrator will have bespoke clip art to draw from. If you need help deciding on an icon, ask your editor for sample figures from a relevant Garland book. If necessary, supply additional source materials such as photos or diagrams from other books or journals.

It is important to think about how icons work in context. For example an icon representing an element might appear in several places throughout the book. It may be the focus of one particular chapter and then reappear as a supporting player in other chapters, so it's important it can do both without conflicting with other icons it appears along side of. This may mean considering two or more versions of the same icon with different levels of detail. For

example, the level of detail depicted in a cell membrane could vary between including each of the individual phospholipids vs. illustrating the membrane simply as a gray bar. For this to work, however, you must ensure that all such elements are clearly labeled on the figure rough so that the illustrator knows what to use.

Once a style for recurring elements (iconography) has been established this will become easier. You can simply refer to previous figures where you've established how an icon looks in your notes to the illustrator.

Consistency

Common elements where decisions regarding consistency should be made:

- How to show DNA
 - Single line or double line
 - Straight lines or helix
- How to show membranes
 - Single line or double line
 - Solid lines or individual lipids molecules forming a bilayer
- How to differentiate enzyme names in reaction schemes
 - Box them
 - Use color or shading
- Chemical groups
 - How it is represented e.g. as a symbol or drawn in full
 - Whether to use color or shading
- Chemical structures
 - Use color or shading for the whole structure
 - Use color or shading for the active part of the molecule / a particular group

Arrows

- Try to use the same direction for the arrows e.g. top to bottom of page, clockwise
- Label the process to which the arrow refers
- Label the different stages shown and refer to them in the legend
- Avoid using in place of leader lines for labeled elements
- Use different styles of arrows to indicate different processes, such as:
 - Chemical reactions and pathways
 - Steps in a process
 - Direction e.g. DNA replication, transcription
 - Movement from one place to another
 - Time
 - Increases/decreases of concentration or activity

Color

For full color books

- The illustrator will produce a color palette for the book

- Avoid introducing more colors than necessary: too much color makes illustrations unclear
- Use colored pencils when drawing the figures so the illustrator can see how you wish the colors to be applied. A standard set of colors would include light and dark versions of each of these colors: black, brown, green, blue, red, yellow, purple, and orange.
- Be aware of colorblind combinations; avoid pairing red and green on graphs, etc.

For two color books

- The second color should be used to highlight the most important parts of a figure
- Indicate where the second color is to be used by using a colored pen
- Only use color for parts of a figure that are to be redrawn in color
- Don't use more than two colors in any one illustration but do make use of shades of gray and patterns.

For black and white books

- Hand-drawn sketches should be in black and white
- Please remember that all line figures and photographs will be black and white in the final book. If the figure does not work without color, do not include it. Do make use of shades of gray and patterns.

Photographs, micrographs, and molecular structures

- If submitting electronically the images should be at a minimum of 300 dpi at the size they are going to be reprinted (12cm for text column width, 6cm for margin figures). Do not take a screenshot of an image or molecular structure, as the resolution will be too low for print.
- Indicate if the scale of your diagram must be reproduced exactly.
- Place scale bars where appropriate and include the scale measurement.
- Please provide the original source files in TIFF, EPS, or JPEG format; or provide the original PDF of the journal article including the image to be used.
- Digital images are often produced with a different color separation to that used in printing so the colors may not reproduce exactly.
- Include the source information for the figure so permission can be cleared.

Is your art ready for the illustrator?

As you work on your manuscript, ask yourself these questions to evaluate whether your figure is ready for the illustrator:

- Is each element properly represented by an icon? Are you happy with the look of that icon? If not, what would you like it to look like?
- Are all the elements properly labeled for the illustrator? Will the illustrator understand what each icon is without reading the legend?
- Will the illustrator understand any written instructions or notations on the figure for figure illustration? Are there any scientific concepts described in these instructions that need to be rewritten in a nonscientific manner?
- Is it clear for the illustrator what are the active components of this figure and what elements are in the background?
- Are all the colors used appropriately for highlight and/or meaning?
- Are the photographs the appropriate resolution for print? Does the photograph need a size indication or scale measure?

Permissions

If figures are taken directly from another publication then permission must be obtained to use them. Discuss with your editor who will be responsible to coordinate the process and obtain the requisite permissions.

If obtaining the permission yourself, keep a copy of all permissions documents and forward to us with the manuscript. Most publishers have electronic permission request forms on their website. Please obtain permission to use the material in all translations, adaptations, and ancillaries of the book and in all print and electronic formats, as well as for use on our website. We can supply standard request forms upon request.

Don't use images from Google without checking and noting the source first. Wikimedia.org is a good source of free-to-use photographs.

Some publishers charge excessive fees for reusing their material. Avoid using figures from the following publishers if possible:

- American Association for the Advancement of Science
- The American Society for Biochemistry and Molecular Biology
- Cold Spring Harbor Laboratory Press
- Company of Biologists
- Annual Reviews
- The American Society for Microbiology
- American Chemical Society

If a photograph or micrograph is only available from one of the above publishers, try approaching the author for a similar, unpublished image.

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