

# Chapter 1

## Chapter Title

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**Contributions:** This chapter was planned and outlined by M. Köbis, with the help of W. Liebermeister and E. Noor.

Dear authors, this is the template file that you can use to write your chapter. To get you started, we added some guidelines, recommendations, and examples. Please remove them and insert your text below, following the outline in your chapter draft. General instructions for writing your chapter can be found in this Google doc. For consistency within the book, we agreed upon certain L<sup>A</sup>T<sub>E</sub>X conventions and defined a number of L<sup>A</sup>T<sub>E</sub>X macros, which we ask you to use. An overview of macros and use-cases, and instructions for using the central git repository, is given in the L<sup>A</sup>T<sub>E</sub>X\_INSTRUCTIONS folder in book-manuscript/latex/chapters/. If you have any questions, please have a look at this document first, before contacting us.

### Chapter highlights

Please begin your chapter with a short overview of the main points and “lessons to be learned”. Use the *chapter highlights* section to give the reader a guide to the chapter, and as a quick reference for readers to find the place where something is discussed. For now, this will only consist of a bullet list.<sup>1</sup> Here we use this list for some extra information.

- This template serves as a starting point for chapter editors/authors. To write your chapter, please follow the outline in your chapter draft (google doc). As your chapter develops, please also update your chapter draft to inform the authors of other chapters.
- It provides a general structure and some examples on the use of figures and references. Normally and initially, each chapter is set up as a copy of this file (in the central repository or the chapter overleaf).
- The central places for questions concerning the content/material of the book are your chapter draft (GoogleDocs page) and/or our SLACK channel.

<sup>1</sup>We might replace these later on by a graphical abstract or an overview page; this is still subject to debate. Note also that footnotes are allowed but to be used sparsely.

editors and main authors in alphabetical order, most important contributors can be emphasized

Please describe briefly who did what; here you should mention anyone who contributed, even if they just gave some minor feedback. Later, this information will appear not at the beginning of the chapter, but at the end of the chapter or at the end of the book. If you like to tell in more detail how the chapter developed, please do that in your chapter draft (google doc) – we will see later how this information can be used.

- If you refer to models, data or code, then make them available online if possible.
- Please use American English.
- Please note: we plan to publish the book under the Creative Commons BY-SA license.
- In case of questions (or recommendations about this template file), please contact Markus or Wolf.

## 1.1 Introduction section

Please use lower case for section titles

Every chapter should start either with a biology question or with an economic analogy, which then leads to the specific topic of the chapter (e.g. a modeling formalism). Note that your first section need not be called “Introduction”.

## 1.2 Another section ..

In your chapter, please follow the outline in your chapter draft (Google doc linked in this overview Google doc). If you change the chapter structure during writing, please also update the chapter draft (information for other authors).

In its first version, a chapter should have between 10 and 15 pages. In the final version, each chapter should contain material for one class and exercises that go with that class.

References (to subsections, figures, etc) within a chapter work like this, see Section 1.1. Try to avoid cross-references between chapters as we cannot guarantee they won’t break.

For bibliography references, use the `citep` or the `citeauthor` command. The results look like this: Einstein laid the foundation for general relativity while the other sources [2, 3] describe standard references in typesetting and evolution. Note that, for example, `\usepackage{todonotes}` was included into the `macros-chapter.tex` of this `TEMPLATE` chapter. Alternatively, you can also use the latex command `\comment` to **highlight text in red**.

You can add notes. That might be handy during writing.

### Economical Analogy

If suitable, use boxes with economic analogies (either an intuitive example from economics, or referring to actual economic theory). In your manuscript, please use this `Ecoblock` environment.

### Philosophical Remarks

Egg was first, I guess. (A “Philosophical Remarks” box can be used to critically discuss basic notions and assumptions.)

### Experimental method

(An “Experimental method” box can be used to describe .. guess what.)

And of course, anything else that should be in a box should be in a box.

### 1.2.1 .. and a subsection

.. but do not use subsubsections please.

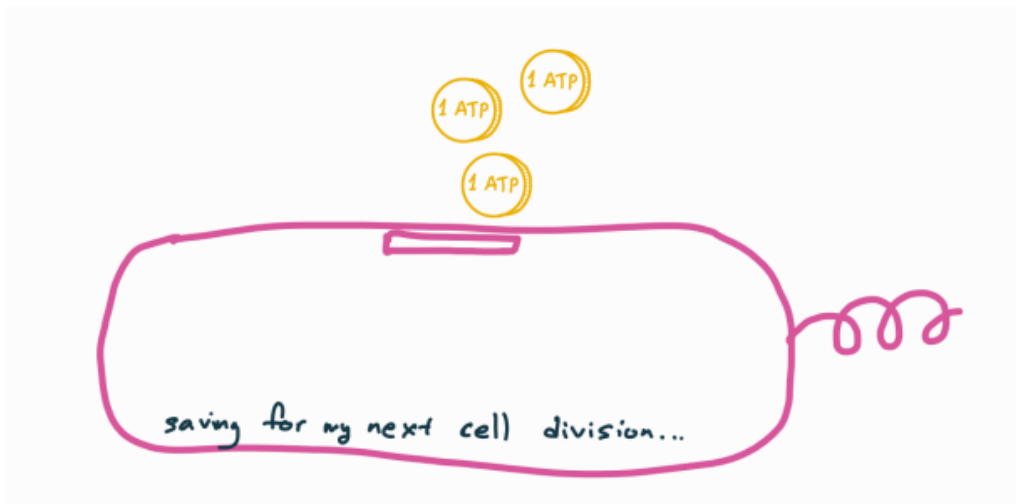


Figure 1.1: Figures can be included using the `figure` environment. Note that external files are included using the `chapterroot` macro. For the first versions, hand-drawn figures are enough. Do not put too much effort into them before a final style is decided on. Please scale figures such that they span, horizontally, either a full page (0.9 `textwidth`) or half a page (0.45 `textwidth`).

## 1.3 Last section

At the end of the chapter, please come back to the biological questions (or economic analogy) from the beginning of the chapter and discuss whether/to what extent they have been answered. That way, we can show whether systems biology is actually useful for answering relevant biological questions.

## Recommended readings

Please provide a list of recommended readings (just write the full references as a list, not using `bibtex`). Possibly, add little comments on why (or for what) this reading is useful.

## Exercises

If your chapter does not contain exercises, this section can obviously be omitted. If your exercises make use of code or files on the internet, please put the files online and provide a link here. Later we will collect these files in a central, more organized place. For exercises typeset within the chapter, you can use the `exercise` environment.

**Exercise 1** Try using the `exercise` environment and referring back to it in the main text. Hint: you can use the `ref` command.





# Bibliography

- [1] Albert Einstein. Zur Elektrodynamik bewegter Körper. (German) [On the electrodynamics of moving bodies]. *Annalen der Physik*, 322(10):891–921, 1905. doi: 10.1002/andp.19053221004.
- [2] Michel Goossens, Frank Mittelbach, and Alexander Samarin. *The L<sup>A</sup>T<sub>E</sub>X Companion*. Addison-Wesley, Reading, Massachusetts, 1993.
- [3] Charles Darwin. *The Origin of Species*. Cambridge University Press, 6 edition, 2009. doi: 10.1017/cbo9780511694295.