

Scientific Writing Tutorial

1. Overall structure of thesis/report
2. Recipe for Science Writing
3. Tutorial exercises

Standard Structure

1. Abstract

2. Introduction/Motivation

- Big picture motivation
- Specific research objectives
- Briefly describe your results, structure of text

3. Theory/Conceptual Background

- Introduction the main concepts, theory, ideas.
- Past results, recent progress in the field.

4. Research Methods

- Theoretical approaches/formalism
- Experimental techniques

5. Results

6. Conclusion/Outlook

- Summarize main results
- What's next?

Standard Structure

1. Abstract ← *required*

2. Introduction/Motivation ← *required*

→ Big picture motivation

→ Specific research objectives

→ Briefly describe your results, structure of text

3. Theory/Conceptual Background

→ Introduction the main concepts, theory, ideas.

→ Past results, recent progress in the field.

4. Research Methods

→ Theoretical approaches/formalism

→ Experimental techniques

5. Results

6. Conclusion/Outlook ← *required*

→ Summarize main results

→ What's next?

variable structure

Structure is project
and thesis-specific
(content is required)

Recipe *for scientific writing*

1. Results & Ideas

- a. Write down the main results & ideas that you want to communicate.
- b. Abstract & Title: Write 1st versions of abstract and title.

Recipe *for scientific writing*

1. Results & Ideas

- a. Write down the main results & ideas that you want to communicate.
- b. Abstract & Title: Write 1st versions of abstract and title.

2. Visuals

- a. Sketch the figures, plots, graphics, tables, equations, and lists/bullet points.
- b. Captions: Add in captions for the figures/visuals.

Recipe *for scientific writing*

1. Results & Ideas

- a. Write down the main results & ideas that you want to communicate.
- b. Abstract & Title: Write 1st versions of abstract and title.

2. Visuals

- a. Sketch the figures, plots, graphics, tables, equations, and lists/bullet points.
- b. Captions: Add in captions for the figures/visuals.

3. Outline

- a. Construct outline for paper/thesis (chapters, sections, subsections, etc ...)
- b. Add in the visuals with captions.

Note: at this point a reader should be able to more or less figure what you are reporting.

Recipe *for scientific writing*

1. Results & Ideas

- a. Write down the main results & ideas that you want to communicate.
- b. Abstract & Title: Write 1st versions of abstract and title.

2. Visuals

- a. Sketch the figures, plots, graphics, tables, equations, and lists/bullet points.
- b. Captions: Add in captions for the figures/visuals.

3. Outline

- a. Construct outline for paper/thesis (chapters, sections, subsections, etc ...)
- b. Add in the visuals with captions.

Note: at this point a reader should be able to more or less figure what you are reporting.

4. Construct the visuals (official versions).

5. Add in the text

The text's main job is to explain the figures, i.e. repeat in words what the visuals explain/show. Often the conclusion is written first and the introduction last.

Recipe ... *final steps*

6. Add in references

7. Re-write the abstract & title if necessary.

8. Proofread/Revise ...get colleague to proofread ... revise where necessary.

a. Proof read for structure and content (i.e. visuals, ideas, data).

b. Proof read for style, wording, language.

(On average, scientific papers go through roughly a dozen-ish drafts.)

9. Submit

Tutorial

Step 1a: Results

Write down a list of all the important results that you have obtained and that you are working towards.

Step 1b: Concepts & info

Write down a list of all the important concepts/ideas/background info that you need to explain your research.

... optional: write down draft Title

3 minutes: Develop your two lists.

5 minutes: Explain your lists to neighbor and give/get feedback.

Tutorial

Step 1a: Results

Write down a list of all the important results that you have obtained and that you are working towards.

Step 1b: Concepts & info

Write down a list of all the important concepts/ideas/background info that you need to explain your research.

Step 2: Visuals

Sketch figures (plots, graphics, tables, equations, bullet points) for each of the above items on your lists in 1a & 1b.

5 minutes: Sketch visuals.

5 minutes: Explain visuals to neighbor and give/receive feedback.

Tutorial

Step 1a: Results

Write down a list of all the important results that you have obtained and that you are working towards.

Step 1b: Concepts & info

Write down a list of all the important concepts/ideas/background info that you need to explain your research.

Step 2: Visuals

Sketch figures (plots, graphics, tables, equations, bullet points) for each of the above items on your lists in 1a & 1b.

Step 3: Outline

Develop an outline in which you can insert each of these figures.

... discuss outline with neighbor, give/receive feedback.