

# Report writing skills for science, technology & engineering students

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This Powerpoint is on the *Student Academic Skills & Wellbeing* Moodle module.

## Why do you need report writing skills?

A final report of any technical project is a primary product of the effort that went into the project.

Your abilities as a professional will often be judged on the basis of your written output.

Reports are critically analysed by peers and colleagues.

# Conventions of report writing

A report is a formal piece of writing and there are some conventions to follow:

## **Tense**

Write in past tenses when reporting work that you have already done.

e.g. Each trial included a placebo group.

NOT: Each trial includes a placebo group.

But otherwise, use present tenses.

## **Voice**

Use the passive voice instead of using “I” / “We”.

e.g. The test tubes were sterilised.

NOT: I sterilised the test tubes.

Your reader is interested in what was done rather than who did it.

## Layout

Each table, diagram or other figure needs a title.

Make sure graphs etc are large enough to be legible.

Use at least 1.5 line spacing.

Use a size 12 font, preferably Arial or Times Roman.

Use a decimal numbering system for your sections and sub-sections.

Each page should be numbered, except the front cover.

# Structure

- Front cover
- Abstract
- Table of contents
- Introduction
- Aim
- Method
- Results
- Discussion of results
- Conclusion
- Reference list
- Appendices

## **Front cover**

The title - a brief but accurate description of the experiment or activity

Your name

The module name and code

The lecturer/tutor's name

The date of submission

## **Abstract**

A brief summary of the report, condensing the main points from the introduction, method, results and main conclusions.

In the “real world”, this is sometimes the only section of your report that someone will read.

## Table of contents

This should contain the following:

- Numbered headings
- Page numbers

Example:

• 3.0 THE VOLTMETER.....	15
• 3.1 The First Voltmeter .....	15
• 3.2 Present Day Voltmeters.....	17



## Introduction

Why you are doing the work – i.e. the wider subject context.

You might give a brief overview here of existing research in your chosen area.

## Aim

A precise and concise description of what you're trying to find out / prove / establish etc.

Think of this as writing a question that you will then try to answer, or giving a hypothesis you're trying to prove or disprove.

You might also like to explain *why* this question is important/interesting.

Use quite assertive language here.

Don't say "I hope to estimate Young's modulus of elasticity".

Instead say "The experiment was designed to estimate Young's modulus of elasticity".

Make clear the *scope* of the investigation.

## Method

How you did what you did, i.e. how you tried to answer the question set out in the introduction / aim.

If you designed your own experiment, write out the method in full.

Give enough detail that a reader could replicate your experiment without having to ask you anything. Draw diagrams if needed.

Mention precautions taken for safety and accuracy.

## Results

Worked data, presented as tables or graphs in a logical sequence.  
(No raw data – that's for the appendix.)

Number each item, e.g. figure 1, figure 2, etc.

Only represent each set of data once (e.g. as a graph OR a table but not both).

Give a concise summary of your results *in words*, making reference to the tables/graphs. Do not expect tables/graphs to explain themselves.

Units should be given in the heading of each data column NOT after the individual values listed in the table.

In graphs, axes must be properly labelled and scaled.

## Discussion

This is where you *interpret* your results. Show that you have thought about what your data could *mean*, and how far (if at all) it enables you to answer the question set out in the introduction / aim.

Does the data support or refute your original hypothesis?

Use this sort of language: “Figure 2 demonstrates that...”.

Don’t make sweeping statements that go beyond what you have observed.

Put your results in context by reading around the published literature in your topic area and relating your findings to the published work, giving references.

The discussion should show analytical ability and knowledge of your subject area.

Critically assess your method. What worked well? What changes would you make next time?

## Conclusions

Summarise the main points from your discussion.

What, if anything, have you established?

Answer (again) the question posed in the introduction, if you can.

Is your conclusion consistent with the published literature?

Don't present any new evidence at this stage.

If no firm conclusion can be reached from your findings, say so.

## References

This will be covered in a separate webinar next week.

## Appendices

Tables of raw data (data sheets), calculations used to produce worked data, etc.

Use an alphabetical system to index each appendix: Appendix A, Appendix B, etc.



## Writing as a process

You don't have to put the words onto the page perfectly on your first attempt.

Most skilled writers make a first attempt and then go back and refine it.

Writing is a process:

- Think
- Plan
- Draft
- Edit
- Proofread

## **Think**

**Plan** – make a spider plan or list of bullet points. Work out the best sequencing of your points.

**Draft** – write without worrying about spelling, grammar, etc. Ideas are more important at this stage in the process.

**Edit** – have you answered the brief? Are your points in the best order? Have you overwritten or underwritten any section?

**Proofread** - check your spelling and grammar. Make sure all your text is in the same font and size.

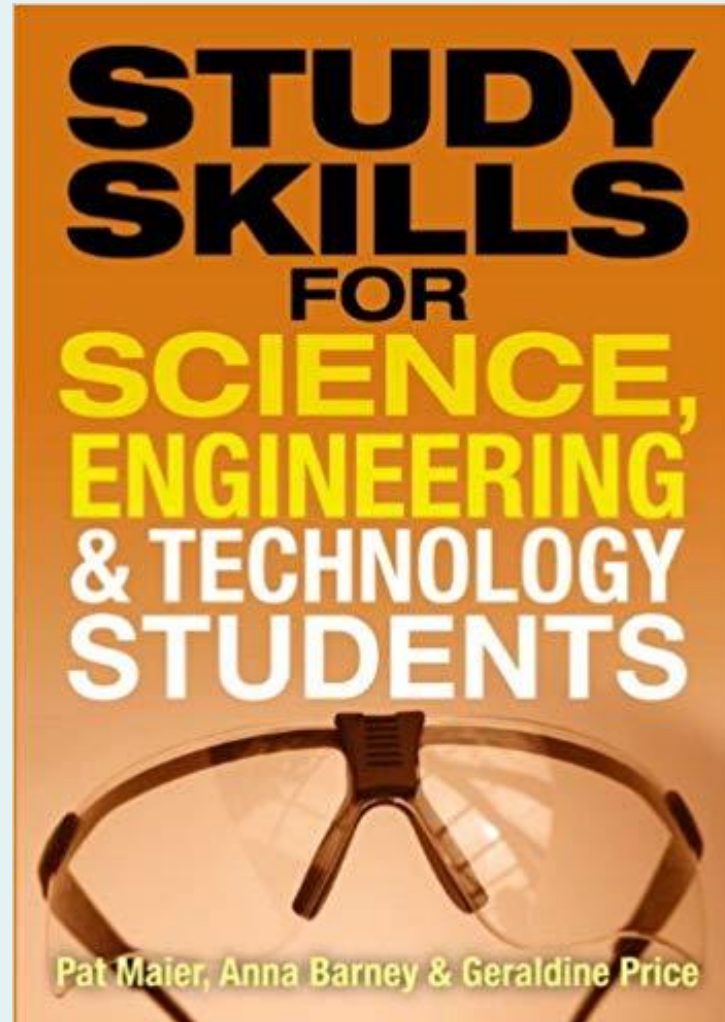
## Getting started

You don't have to write the report sections in order.

It might, for example, be easier to start with the methodology, leaving the introduction for later.

You'll definitely need to leave writing the abstract until last.

## Further reading



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Thank you.