How To Write A Lab Report

Learning Enhancement Team
LET@mdx.ac.uk
Variety is the Spice of Life!

Different Schools... ....Different Rules

- Can you use ‘I’ in an academic text?
- Should an essay have section headings?
- How long is a report?
- Do you use primary or secondary research?
- Footnotes, endnotes or no notes?
- Harvard style referencing or MLA? What about APA?

Which school are you in? What is acceptable and what is unacceptable in your field?

Always check in your module handbooks or with your tutor if you are concerned about appropriacy
How To Write A Lab Report Aims

— To look at the structure and purpose of a Lab Report

— To discuss the process(es) of writing a Lab Report

— To look at the language used in Lab Reports
What Is A Lab Report?

Discuss these questions with the person sitting next to you. Remember that different schools may have different approaches.

— How does a Lab Report differ from other texts you have written?
— What is the main purpose of a Lab Report?
— What do you think is easy / difficult about writing Lab Reports?

Basics:

— Arial; 11 or 12 point
— 1.5 line spacing
— Print on A4
— 1500-2000 words
Structure Of A Lab Report

Title
Abstract

Introduction

Method

Results

Discussion

Conclusion

References

General
Specific
# Title Page

<table>
<thead>
<tr>
<th>Do</th>
<th>Don’t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain what the experiment involves in a long phrase (be specific!)</td>
<td>One word titles: ‘Chromatography’ or ‘Enzymes’</td>
</tr>
</tbody>
</table>
| *The effect of...*  
*The influence on...* | Use phrases such as:  
"An experiment to show ..."  
"A study of..."  
"An investigation into..."
| Include the title on the front cover and first page |  |
Abstract

What’s the difference between an abstract and an introduction?

– Abstracts are shorter (usually 150-200 words)
– The abstract is an overview of the whole report
– Abstracts show the reader the main findings of the report

Abstracts should be written **before** you have finished the report – true or false?

If you would like further information, why not attend the AWL Open Workshop **How To Write An Abstract**?
## Abstract

<table>
<thead>
<tr>
<th>Do</th>
<th>Don’t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summarise the whole report in one paragraph</td>
<td>Use references</td>
</tr>
<tr>
<td>Write it to stand alone as a description of the whole study</td>
<td>Refer to the report’s structure</td>
</tr>
<tr>
<td>Write it last</td>
<td>Include statistics</td>
</tr>
<tr>
<td>Keep it short (150-200 words)</td>
<td>Include abbreviations</td>
</tr>
<tr>
<td>Remember it is not an introduction</td>
<td></td>
</tr>
</tbody>
</table>

### Language of Abstracts:

1. Full sentences
2. Past tense
3. Impersonal passive (“The acid was applied”)
4. Avoid negatives (not, no)
5. Avoid abbreviations, symbols and any other language ‘shortcuts’

(Graetz 1985 in Swales & Feak 1994)

© Middlesex University
Introductions

- Introduce the area and previous research in the area
- Indicate a gap in the previous research; include why there was a need to conduct the experiment(s)
- Outline the purpose and relevance of the experiments
- End with the aims
Writing Introductions

Outline the claims about statements from other research (use ‘that’):

a) The ... theory indicates that acids are...
b) The ... theory confirms that acids are...

a) Smith and Wilson (2009) state that ...
b) Smith and Wilson (2009) argue that ...
Aims

Aims can be written like this:

— 3 – 5 bullet points
— Statements of scientific intentions
— Use ‘strong’ sentence (the infinitive):
  • To investigate...
  • To analyse...
  • To determine whether...
Methodology

What is the purpose of a Methodology?
- To explain to the reader, for possible replication, the process(es) of your experiment

What type of information is included in a methodology?
- Sample information, materials, procedures, rationale, problems~solutions...

What type of language is used when writing a methodology?
- Past tense (usually), description, factual – no analysis

<table>
<thead>
<tr>
<th>Do</th>
<th>Don’t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use paragraphs</td>
<td>Use bullet points</td>
</tr>
<tr>
<td>Depersonalise:</td>
<td>Personalise:</td>
</tr>
<tr>
<td>– The liquid was transferred</td>
<td>– I/We transferred the liquid</td>
</tr>
<tr>
<td>Explain what was done</td>
<td>Write instructions</td>
</tr>
<tr>
<td>Give enough detail for replication</td>
<td></td>
</tr>
<tr>
<td>Illustrate &amp; write</td>
<td></td>
</tr>
</tbody>
</table>
Methodology

You may wish to include the following elements in your methodology:

- Place, time and date
- Whether you replicated a previous methodology
- Sample
- Sampling rationale (how it was chosen)
- Limitations (for example, a small sample)
- Procedure
- Data collation
- Data analysis
Results

The Results section should be clear and easy to follow – however, some students make the mistake of either writing too much or only including illustrations. A good Results section will be a well balanced mix of both illustration and explanation.

Some top tips:

1. Start with an overall summary of the results
2. Do not begin with an illustration
3. Label graphs/tables (table 1… graph 3…)
4. Refer to illustrations in your text (table 1 shows…)
5. Use complete sentences
6. Describe statistics, not raw data
7. DO NOT INTERPRET (yet)!
Results Structure

Start with an introduction – describe your results in general, before giving a more detailed description.

In the main body, use paragraphs to detail your results with illustrations to support.

Help the reader by using ‘locating statements’, such as:
- ...as can be seen in graph 1...
- Table 6 shows that...
- As illustrated in figure 3...
- The effect of heat can be seen in the results of chart 2...

Highlighting statements: evident, occurrences, trends
Discussion

What is the difference between the Discussion and the Results section?

- It is in the discussion that you can begin to interpret your results. If the Methodology is concerned with how, the Results with what, then the Discussion is concerned with why.

You do not need to discuss all your results – true or false?

- You do not need to discuss all your results in the Discussion section. However, you must make sure that any results you do interpret in the Discussion were also clearly explained in the Results section.
Discussion

Logical **interpretation** of results

- (What do they tell you? What happened /didn’t happen? Why?)

Speculation

- (might, could, may, should, may be deduced that, this suggests that..)

Link results to theoretical framework.

- (Discuss results in relation to previous research: cite references)

Identify **limitations** of your experiment

**Implications** for future researchers? Or generally?
**Conclusions & Reference List**

**Conclusions:**

<table>
<thead>
<tr>
<th>Do</th>
<th>Don’t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use paragraphs</td>
<td>Include any new information or any new aspects of results or any new interpretation</td>
</tr>
<tr>
<td>Keep each paragraph to one point only</td>
<td></td>
</tr>
</tbody>
</table>

**Reference List:**

*Alphabetical* list of references

See your citation and referencing guide (in your module handbook)
Task

1. From which section of the Lab Report does the following come from?

2. How can it be made more formal?

There are 2000 different types of salmonella, and the occurrence of these different types of salmonella differ from one place to another. For example, in the States all outbreaks of food poisoning are caused by Salmonella typhimurium and Salmonella enteritidis. But there are other species of Salmonella, which as we know always causes typhoid fever. A much more serious food-borne illness. Kids and old people are at high risk of loosing more water than they can drink - dehydration can get really serious though. We can go into shock and the food poisoning period can cause us to die (Dr Catherine Sayers 2009).
A suggested re-write

• There’re 2000 different types of salmonella, and the occurrence of these different types of salmonella differ from one place to another. In the States all outbreaks of food poisoning are caused by Salmonella typhimurium and Salmonella enteritidis. But there are other species of Salmonella, which as we know always cause typhoid fever. A much more serious food-borne illness. Kids and old people are at high risk of loosing more water than they can drink - dehydration can get really serious though. We can go into shock and the food poisoning period can cause us to die (Dr Catherine Sayers 2009).

• There are more than 2000 strains of salmonella, and the occurrence of different types of salmonella differs from one place to another. For example, in the US most outbreaks of food poisoning are caused by Salmonella typhimurium and Salmonella enteritidis. However, there are also other species of Salmonella, such as Salmonella typhi, which is the causal agent of typhoid fever, a much more serious food-borne illness (Sayers 2009). The very young and the elderly are at high risk of losing more water than they can take in; thus, dehydration can become very serious. The body can then go into shock and the food poisoning episode can be fatal (Sayers 2009).
Where now?

— Need more detailed assistance? Book a tutorial!
— Want feedback on a specific section? Drop in to Getting Your Assignment Ready!
— Want somewhere quiet to write, and get on the spot assistance? Try The Writing Space!
— Got a few quick questions? AWL Office Hours at [The Study Hub] are for you!
— AWL Open Workshops can be booked here!

• Suggestions:
  – How To Write Abstracts
How To Write A Lab Report

It's QUESTION TIME!!