

Instructions for writing a Project Report

The report must be structured so that it is manageable and easy to read. Project reports must follow the IMR&D structure (introduction, methodology, results, discussion, and conclusion) with some additional elements.

The individual chapters in the report must begin with a statement that provides the reader with an overview of the content of the chapter. Likewise the headlines for each chapter and section should reflect the content. Concise language is important. Avoid using complicated sentence structures if the message can be conveyed using simpler words and sentences

The length of each section may vary between different projects, you should ask your course manager about the expected length of each section.

Structure for reports:

1. Front page
2. Cover page
3. Preface
4. Abbreviation list
5. Table of contents
6. Table of figures
7. Introduction **including problem statement**
8. Problem statement
9. Methodology
10. Results
11. Discussion
12. Conclusion
13. Future work
14. Author contributions
15. Reference list
16. Appendices

1. Front page

2. Cover page must contain the following:

- Course Name
- Title of project
- Abstract
 - The abstract gives the reader a short “preview” of what they can expect to read in the project. Abstracts should be one paragraph, of about 250 words. No references, subheadings, or abbreviations in an abstract. An abstract should contain:
 - Why is the topic of interest?
 - Research problem(s) you investigated
 - The basic design of the study
 - The major results
 - A brief summary of your final conclusions.
- Period of execution
- Team no. and the names of the authors
- Date of submission
- School & address

3. Preface

The preface contains all the information that does not belong in the actual report e.g.:

- Which type of report is this?
- Where has the work been performed?
- Acknowledgements to people/companies etc. that have helped with the project, but who are not included in the author list.
- Guide to the reader

Furthermore, the authors of the report must sign and date the report on this page. Below an example of a preface is given

Preface

This report has been prepared in the Fall/Winter 2019 by: person A, person B, person C, person D. of fifth semester from Absalon Professionshøjskolen, Center for Engineering and Science.

This report was written for a 10 ECTS semester project the subject is "Project 4 - Downstream Processing".

The report is about the topic of acetic acid, more specifically the underlying production process, which is implemented in SuperPro Designer.

The purpose of the project is to design a process for production of profitable product, understanding the scope of it, the importance of designing a process and using simulations, execution of the relevant calculations such as mass balance and economy using one of the simulations software. The purpose of the project is to design a process for production of a profitable product and business. Understanding the scope of it, the importance of designing a process using simulations, execution of the relevant calculations such as mass balance and economic analyses.

We would like to thank everyone at Absalon for their guidance before and during the execution of the project.

Person A, sign and date

Person B, sign and date

Person C, sign and date

Person D, sign and date

4. Abbreviation list

Abbreviation list with the abbreviations and the meaning. In the document, first time the abbreviation is mentioned the meaning should be written and the abbreviation presented *Eg.. The analysis of chemical oxygen demand (COD) is shown*

5. Table of contents

Table of contents with page numbers for the individual sections.

- Pages before table of contents are numbered with roman numbers.
- Pages numbered after table of index are numbered with numbers.

6. Table of figures and tables

A table of figures and table of tables is necessary with the page where is included

7. Introduction.

The introduction of a paper should provide answers to the following questions:

Why is the topic of interest?

What is the background on the previous solutions, if any?

What is the background on potential solutions?

What is the basic design of your study?

8. Problem statement

What is your hypothesis/hypotheses?

How did you test your hypothesis/hypotheses? (Can address each hypothesis individually)

What will be presented in this paper?

9. Methodology

Describe how you obtained your results in a way that others could replicate them. It should include:

- Source of materials.
- Analytical methods, including brand and model for the analytical equipment (including software)
- Reference to previous studies and standard procedures (if any) and modifications.

It should not include

- A protocol "step by step" is not necessary, the reference to a standard method should be included. If there are any modifications to a standard protocol that should be mentioned.

Compare the next two paragraphs to see the difference between a step-by-step protocol and a methods section:

“To measure enzyme activity we first took a 200 μL pipetter and transferred 150 μL of Buffer 1 into an 1.5 mL Eppendorf tube, then added 35 μL of Enzyme Solution 1, and 50 μL of Substrate Solution 1. We turned on the spectrometer and waited 30 min for the lamp to warm up, next we.....”

“Laccase (Sigma-Aldrich) enzymatic activity was measured by observing the oxidation of substrate indigo carmine at 620 nm using a Shimadzu UV-1800 spectrometer following the protocol of Walsh. Briefly, 20 μM Laccase in 0.1 M phosphate buffer (pH 6.3) was assayed with varying concentrations of indigo carmine (0 – 50 μM) for 15 min at 30 s intervals.”

- Calculations. Do include relevant equations; do not show calculations.

10. Results

This is where you present the results of your experiments. Before you include any figures or tables, you need to introduce your results section with a paragraph.

- Describe all the results in a short form in the text. All tables and figures must be described and referenced in the text.
- Include subheadings in your results
- The results section is not a diary of all the data you have collected during the whole semester – only show results that are important to answering your hypotheses.
- It is important that you do not discuss the results or speculate as to why something happened; this is what makes up the Discussion section.
- Make tables and figures of interesting results, and decide what messages to communicate. Only the edited results should be included.
- Raw data (if desired) and results not interesting enough for the main text should be placed in an Appendix at the end of the report.
- Format of figures
 - Make figures clear and easy to read and keep always the same format
 - Remember to add the axis legend
 - Don't repeat the same information in different figures or in tables
 - Remember to number the figures and tables
 - Figures captions are placed under the figure
 - The figure caption should include a description of the figure and explanation of what is being presented
- Format of tables
 - Tables need to be clear and easy to read and always have the same format
 - Tables need a table number, a table title, and the units of the data need to be clearly specified
 - Use footnotes for further explanation.

- Be accurate with numbers. (significant figures)
- Tables caption are place above the figure.

11. Discussion

The Discussion, together with the Results section, are the most important sections of the document!

This where you discuss your results:

- Highlight the most significant results, but don't just repeat what you've written in the Results section. *Remember to refer to your figures with their figure numbers.
- How do these results relate to the original question?
- Do the data support your hypothesis?
- Are your results consistent with what other investigators have reported?
- If your results were unexpected, try to explain why.
- Is there another way to interpret your results?
- What further research would be necessary to answer the questions raised by your results?
- How do your results fit into the big picture (the scientific field that you introduced in the introduction)?

12. Conclusion

Answer your problem statement. A brief description of the main findings and perspectives from the study.

13. Future work

In this section, possible future work and future perspectives are presented. This section should answer the next questions

- What else could be done that wasn't completed because of lack of time?
- What are the next logical steps?

14. Author contributions

Here you should briefly state which author did what in the article; just refer to the authors by their initials

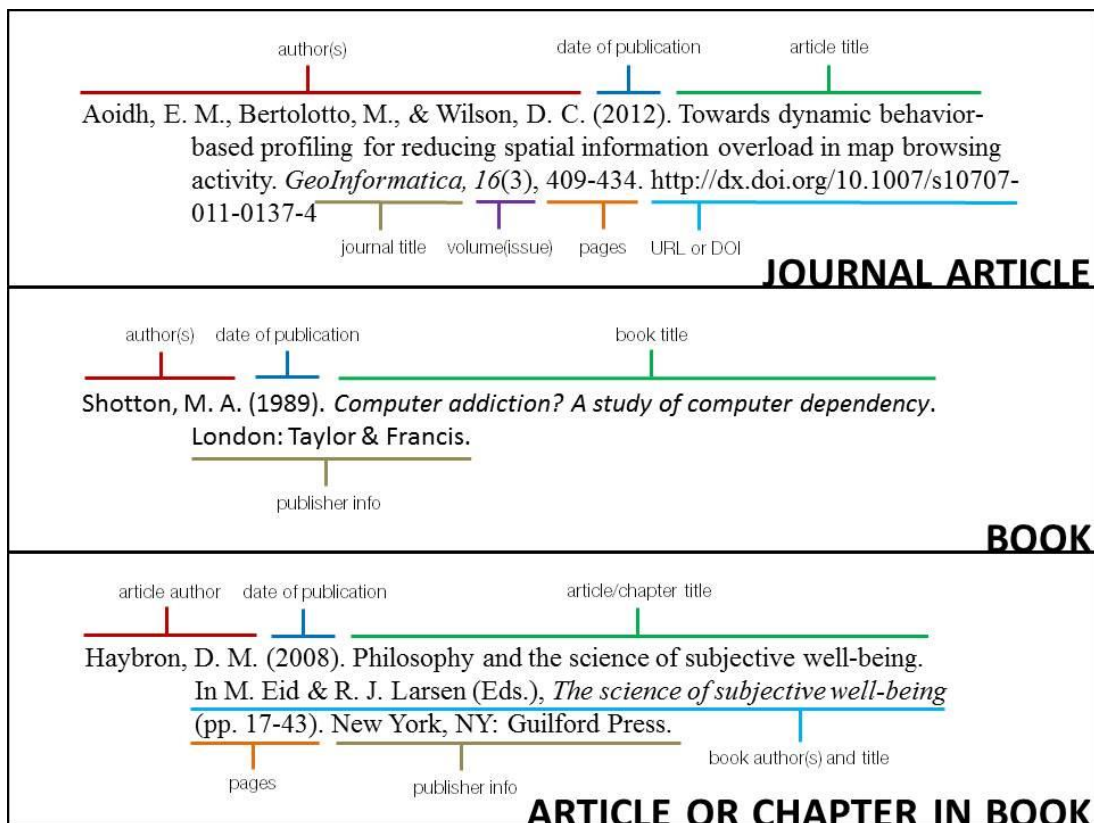
e.g. All experiments were designed by S.M.W, C.M.P, and E.J.E. S.M.W carried out assays, C.M.P performed statistical analyses, E.J.E undertook modelling, all authors wrote and reviewed the final manuscript.

15. Reference list

Different reference styles can be chosen. However it is important to be consistent during the whole document. All references must be included in the text. (As numbers or author last name and year).

It is recommend to use a reference management software such as Mendeley.

At the end of the document, a reference list is included and all the reference information must be added



16. Appendix

In appendices you include methods and results which did not make it into the main text.

- Your appendices should be as clear and easy to read as the main figures and tables of your text
- Your appendices should be numbered
- Refer to your appendices in the main text using their numbers e.g. Unprocessed data for Figure 1 is shown in Appendix 1.
- Appendices could include:

- untreated raw data can be inserted,
- examples of performed mathematical calculations
- program scripts e.g. python
- special protocol used