Ein Bild, das Text, Schrift, Logo, Grafiken enthält.

Automatisch generierte Beschreibung

**Bachelor / Master Thesis**

**Title Title Title Title Title Title Title Title Title Title Title Title Title Title**

Submitted by

**Name Surname**

Matriculation Nr. Xxxxxx

Technische Universität Berlin

Institute of Biotechnology

Chair of Bioprocess Engineering

1st examiner: Prof. Dr. rer. nat. Peter Neubauer

2nd examiner: Title Name Surname

Advisor: Title Name Surname

Month Year

**Ein Bild, das Schrift, Text, Diagramm enthält.

Automatisch generierte Beschreibung**

# Table of contents

Abstract II

Zusammenfassung III

List of Abbreviations IV

1. Introduction 1

2. Literature Review 2

2.1. Second level numbered heading 2

2.1.1. Third level numbered heading 2

2.1.2. Third level numbered heading s 2

2.2. Second level numbered headin*g* 2

2.2.1. Third level numbered heading 2

3. Aim 3

4. Materials and Methods 4

4.1. Second level numbered heading 4

4.1.1. Third level numbered heading 4

4.1.2. Third level numbered heading 4

4.2. Second level numbered heading 4

4.2.1. Third level numbered heading 4

4.2.2. Third level numbered heading 4

5. Results 5

5.1. Second level numbered heading 5

5.1.1. Third level numbered heading 5

5.1.2. Third level numbered heading 5

5.2. Second level numbered heading 5

5.3. Second level numbered heading 5

5.3.1. Third level numbered heading 5

5.3.2. Third level numbered heading 5

6. Discussion 6

7. Conclusions and Outlook 7

8. Theses 8

9. References 9

Eidesstattliche Erklärung V

Curriculum Vitae VI

Acknowledgements VII

Appendix VIII

# Abstract

Abstract in English Abstract in English Abstract in English Abstract in English Abstract in English

Abstract in English Abstract in English Abstract in English Abstract in English Abstract in English

*One Page: One sentence introduction, background, aim of the thesis (scientific niche and how it is addressed), results (most important, be specific, take them from the 10 theses of the thesis), conclusion (significance for the field)*

# Zusammenfassung

Zusammenfassung auf Deutsch. Zusammenfassung auf Deutsch. Zusammenfassung auf Deutsch. Zusammenfassung auf Deutsch. Zusammenfassung auf Deutsch. Zusammenfassung auf Deutsch.

*Eine Seite: Ein Satz Einführung, Hintergrund, Ziel der Arbeit (wissenschaftliche Nische und wie man sie löst), Ergebnisse (am wichtigsten, sei spezifisch, nimm sie aus den 10 Thesen der Arbeit), Schlussfolgerung (Bedeutung für das Feld).*

# List of Abbreviations

|  |  |
| --- | --- |
| Abbreviation | Meaning |
| CDW | cell dry weight |
| DAG | diacylglycerol |
| DO | dissolved oxygen |

# 1. Introduction

Introduction Introduction Introduction Introduction Introduction Introduction Introduction Introduction Introduction Introduction Introduction Introduction Introduction Introduction

*A brief introduction to the topic (approximately 1 page). Should introduce the general topic of the thesis and summarize the structure of the work (overview). Must describe the scientific gap, niche.*

# 2. Literature Review

Literature Review. Literature Review. Literature Review. Literature Review. Literature Review. Literature Review. Literature Review. Literature Review. Literature Review. Literature Review.

*The literature review generally consists of about 10-20 pages for Master theses, or 8-10 pages for Bachelor theses, and may also include figures and/or tables (approximately 1-3). It is important here that the state of the literature on which the Bachelor/Master thesis is based is described in detail in the form of a scientific review (Note: NOT like a textbook!). The chapters should be structured in such a way that the current state of research in relation to the sub-areas necessary for the work is scientifically introduced. The literature used is then partially used in the discussion to analyse the own results.*

## 2.1. Second level numbered heading

### 2.1.1. Third level numbered heading

# 3. Aim

Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim Aim

*After the literature review, the definition of the aim follows (0.5-1 page): Clear presentation of the research or development task to be solved, possibly also in sub-points. The results presented are measured against the aim definition, i.e., it is evaluated to what extent the aim has been fulfilled.*

# 4. Materials and Methods

Materials and Methods. Materials and Methods. Materials and Methods. Materials and Methods. Materials and Methods. Materials and Methods. Materials and Methods. Materials and Methods.

*All materials and methods must be described in detail so that a anyone can reproduce the experiments. The scope should be of 10-20 pages for Master theses or of 5-15 pages for Bachelor theses. For each method, all used devices and chemicals must be specified with manufacturer, location, purity, etc. An additional list of devices and chemicals is not necessary****.***

# 5. Results

Results Results Results Results Results Results Results Results Results Results Results Results Results Results Results Results Results Results Results Results Results Results Results Results

*(approximately 20-30 pages for Master theses, or 10-12 pages for Bachelor theses): Here, the results are presented in a logically sensible order (this order does not necessarily reflect the chronological sequence). Each individual result is accompanied by a representation (figure or table). For each individual result the following questions must be answered:*

1. *What is to be investigated (What is the aim of the experiment/investigation)?*
2. *How is this investigated? (Methodical approach)*
3. *What is the result? (Detailed description)*
4. *What is the conclusion?*

*Legends of the figures and titles of the tables should be self-explanatory. In the results section, the reference to the literature is minimal. Certain original data (series of measurements, parallel experiments, primary data that are not discussed in detail) can also be placed in the appendix.*

## 5.1. Second level numbered heading

### 5.1.1. Third level numbered heading

# 6. Discussion

Discussion Discussion Discussion Discussion Discussion Discussion Discussion Discussion Discussion Discussion Discussion Discussion Discussion Discussion Discussion Discussion

*Discussion of the results of the work considering the state of the literature. Intensive work with the literature. The discussion starts with the most important and then goes into the details. At the end, there is a brief summary. (approximately 10 pages for Master theses, or approximately 5 pages for Bachelor theses)*

# 7. Conclusions and Outlook

Conclusion and Outlook Conclusion and Outlook Conclusion and Outlook Conclusion and Conclusion and Outlook Conclusion and Outlook Conclusion and Outlook Conclusion and Outlook

*0.5-1 page. Avoid literature references in this chapter. Conclusions: What do you conclude from your own work? What do you expect in terms of the development of the field? What do other scientists need to consider based on the present work? Outlook: Look into the future. Where does your work go from here? What do you suggest? What is your vision? If one of the research questions in the work could not be answered, you can suggest here what the next necessary steps are.*

# 8. Theses

1. …
2. …
3. …
4. …
5. …
6. …
7. …
8. …
9. …
10. …

*Numbered list (10 points) of the most important detailed results of the work, sorted by importance (maximum 1 page). The Theses can be very specific findings. Theses are statements/claims that arise from the results of the work, for which evidence has been provided in the context of the results achieved in the work (see* [*https://wortwuchs.net/these/*](https://wortwuchs.net/these/) *(German),* [*https://writingcenter.unc.edu/tips-and-tools/thesis-statements/*](https://writingcenter.unc.edu/tips-and-tools/thesis-statements/)*,* [*https://penandthepad.com/how-8229968-write-thesis-statement-science-report.html*](https://penandthepad.com/how-8229968-write-thesis-statement-science-report.html)*,* [*http://www.cws.illinois.edu/workshop/writers/tips/thesis/*](http://www.cws.illinois.edu/workshop/writers/tips/thesis/)*. The 10 theses provide a good basis for a condensed and specific summary of the results (abstract).*

# 9. References

*Alphabetical listing by first author. To be indicated are: Author(s): Title; Journal (use the correct journal abbreviation), year of publication, volume (issue), page numbers from-to. Compilation preferably with a Reference Manager, Endnote, Citavi or other software. References should be in the following format:*

Claßen, J., Aupert, F., Reardon, K.F., Solle, D. and Scheper, T. (2017). Spectroscopic sensors for *in-line* bioprocess monitoring in research and pharmaceutical industrial application. *Anal. Bioanal. Chem.* 409(3), 651-666.

*Sources from the Internet (if any) should be cited with URL and date of access. Citation in the text with Author and Year, e.g. (Kurreck et al., 2012), (Junne and Neubauer, 2010). 50‐80 references for Master theses, or 40-50 for Bachelor theses*

# Eidesstattliche Erklärung

Ich versichere hiermit an Eides Statt, dass ich die von mir eingereichte Bachelorarbeit/Masterarbeit selbständig verfasst und ausschließlich die angegebenen Hilfsmittel und Quellen verwendet habe.

I hereby affirm in lieu of oath that I have independently written the bachelor/master thesis submitted by me and have exclusively used the aids and sources indicated.

Berlin, den

……………………………………………………..

Unterschrift

# Curriculum Vitae

*Short tabular CV**(max. 1 page)*

# Acknowledgements

*MUST be included in the work (Can also be placed at the beginning). It is important, as the work is submitted under an individual name, but all scientific work today is interactive (single authors are the exception). Reference to all individuals associated with the work (including supervisor). Important: The acknowledgment must include the projects that funded the work (please discuss with the supervisor).*

# Appendix

# 