

Guidelines for Preparing the Master's Thesis

(for international students)

Master Evolution, Ecology and Systematics

Friedrich Schiller University Jena

Based on the guidelines for preparing a final thesis in the section Biochemistry of Nutrition
at the Institute of Nutrition

Prof. Dr. Stefan Lorkowski, February 2015



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1 General Suggestions

The guidelines are supposed to give orientation for the preparation of the master's Thesis. Each supervisor of a thesis has his or her own ideas of how a thesis should look like, which should be adhered to. The guidelines provide only the general requirements for a master's thesis in *Evolution, Ecology and Systematics*. Other recommendations as, for instance, provided by the faculty or by external supervisors, may therefore differ from the guidelines.

- a) As a basic principle the thesis should be as close as possible to the structure and design of a paper in a scientific journal. Ideally the thesis can later be submitted to a journal with only a few adaptations.
- b) In addition to the summary the thesis must contain a summary in German ("Zusammenfassung"). Seek help with translations and request proofreading by your fellow students and/or supervisor.
- c) **All** statements that refer to your own work must be written in the past tense. General statements, however, have to be written in present tense, e.g. "Coniferous forest stay green during the winter. This was tested by examining aerial images."
- d) Information, statements or arguments that belong together should be merged in paragraphs, which should be not too long (at least two paragraphs per page) or too short (at least three sentences per paragraph). Never structure a paragraph further with sub-paragraphs!
- e) Commentary footnotes to the body text are not allowed.
- f) In the body text, numbers between 1 and 12 are written as words.
Exception: If the number is followed by an abbreviated measurement unit.
 Example: "one millilitre" but "1 ml"
 Apart from conventions of a specific discipline (e.g. ha instead of m²), only SI measurement units should be used. A non-breaking space character between number and measurement unit prevents that they are separated by a line break.
- g) Chemical formulas and notations have to be printed with the correct superscript and subscript of numbers.
- h) Use scientific style of writing:
 - short, coherent, explicit, descriptive
 - to the point, plain
 - no rhetorical questions ("What do these results tell us?")
 - avoid subjective assessments and rating (e.g. "a statistically significant increase (p = 0,024)" instead of "much higher" or "a distinct increase")
 - short and clear sentences (no run-on sentences)
 - avoid unnecessary fillers (e.g. "actually")
 - no flowery phrases, rhetoric idioms, buzzwords, jargon
- i) Avoid passive style whenever possible.
 - "I" or "we" instead of "the author" or "the authors"
 - "I measured/we measured" instead of "was measured"

- j) Latin names of organisms (genus and species) are **always** printed in italics.
- k) For Greek letters use the special characters and not the Latin notation.
Example: “ α ” instead of “alpha”, “ χ^2 ” instead of “Chi²”
- l) Avoid accentuations in the body text with **bold**, underlined or *italic* printing.
- m) Abbreviations should be used sparingly, but if applied, they have to be used consequently and consistently. When used for the first time, the term is written in full text, followed by the abbreviation in parentheses. This does not apply to common abbreviations like measure units, time units, chemical symbols etc. If many specific abbreviations are frequently used in the text, it may be reasonable to provide a list of abbreviations. In such a list all abbreviations are sorted alphabetically.
- n) Don't start sentences with an abbreviation or a number.
Example: “Twenty years later ...” instead of “20 years later ...”
- o) Numbers with more than three digits should be structured by a delimiter to improve readability.
Example: “45 000” or “45,000” instead of “45000”
- p) Don't write numbers with different meaning directly in a row.
Example: “In 1995 a total of 60 animals was ...” instead of “In 1995 60 animals were ...”
- q) Use p-values consistently with three digits after the decimal point (e.g. “p = 0.300”), smaller values are given as “p < 0.001”.
- r) Produce free space (e.g. indentions from the edge of the text block or between words in a Table) by using tabulators and not by filling up the gap with blanks.
- s) Avoid parenthesis followed by a parenthesis, instead divide the statements by a semicolon within parentheses:
Example: “... (mainly during the winter season; Hansson 1996)” instead of “... (mainly during the winter season) (Hansson 1996)”
- t) Don't use automatic hyphenation. Only very long words may be hyphenated manually by using a conditional hyphen (not the simple hyphen on the keyboard!).
- u) Check the page breaks; avoid large empty space e.g. at the end of a chapter or subchapter.
- v) Tables and figures together with the legends are implemented in the body text.
- w) All formal elements must be used consistently in all parts of the thesis!

2 Delivery of the Thesis

- a) The master's thesis is an **autonomous** piece of scientific work. Your supervisor will give support and advise, but he or she is not responsible for the general character of the thesis.
- b) Before you start to work on the thesis it is recommended to discuss the intended structure with the supervisor. Specific input of the main supervisor always has priority over the general guidelines when discrepancies occur.
- c) Before the thesis is delivered to the Examination Office of the faculty the supervisor should implicitly inspect the draft version. Sufficient time should be left for the deadline of the delivery so that:
 - The supervisor has enough time to read the thesis.
 - There is enough time is left to incorporate any comments and corrections.

The time schedule for delivery should be arranged with the supervisor beforehand. You also should ask the second reviewer if he or she would like to have a look at the draft version.

- d) It is highly recommended that at least one other person (friends, fellow students) reads through the thesis and gives comments on the content and style before it is submitted to the supervisor. Also for this step enough time has to be scheduled.
- e) In printing the thesis, you should choose an appropriate paper quality. The choice of paper has to fulfil the following criteria:
 - permanent paper according to ISO (DIN-ISO) 9706
 - suitable for laser printing
 - offset-paper suitable for pages with text, if necessary use different paper quality for pages with coloured graphs or photos
 - paper weight: 90-100 g/m²
 - paper quality: A or B, no universal copy paper with 80 g/m² (quality C)
- f) The thesis must either be printed with a laser printer or produced as high-quality hardcopies of the printout. Printing with an ink-jet printer is not acceptable since permeability is not guaranteed.
- g) The thesis should have a durable cover with a resistant binding. Ring and spiral binding is not permitted!
- h) Colour and design of the cover can be chosen freely but should preferably be neutral (e.g. cover in dark red, dark blue or black, no bright colours or white).
- i) The cover may show the embossing “Master's Thesis”.

- j)** Each printed copy must include a file in a format that is compatible with WORD **and** a PDF-file on CD/DVD-ROM. Please note that:
- All parts of the thesis must be saved in **one** WORD file and **one** PDF-file, respectively. The files have to be identical to the printed version!
 - In addition, the CD/DVD-ROM may contain extensive appendices and other material that is not included in the printed version. For extensive appendices a Table of Appendix Contents should be provided on the first page – or pages – of the appendix (A-1). In this table also the file names of material that is only available in electronic form on the CD/DVD-ROM have to be indicated.
 - The CD/DVD has to be enclosed in an envelope attached to the inner face of the back cover of the thesis. The CD/DVD must be easily accessible, so the envelope must not be glued.
 - The CD/DVD has to be marked by a permanent ink-pen with the author's name, the title of the thesis and the year of delivery (don't use adhesive labels).
 - When converted to the PDF-format pay attention that
 - figures have sufficient resolution (coloured: at least 600 dpi; grey scale: at least 1 200 dpi) and are converted without compression.
 - all used font families are correctly embedded.
 - The files have to be checked carefully for correct formatting (page breaks, no needless empty lines or spaces at the top of pages etc.), accurate depiction (e.g. of special characters) and completeness.
 - The files must not have any protection measures (passwords, protection from copying and printing).
- k)** In addition, all relevant original data that were collected during the project have to be made available in a sufficient way (e.g. as EXCEL files) on CD/DVD-ROM. Pay particular attention to clear documentation (data files named unambiguously and comprehensibly; ordered in a clearly structured index; no coding). In case of literature reviews the considered literature should be included as e.g. PDF-files, if applicable.
- l)** Make sure that all formal requirements of the Examination Office are fulfilled.
- m)** Make sure that all the practical requirements of the supervisor are fulfilled (e.g. delivery of the experiment documentations; lab books and data files; tidy up the work place; give a seminar talk etc.).

3 Cover Sheet

- a) You have to use the following cover sheet for your thesis (WORD file available at the homepage). Changes are not allowed.
- b) The cover sheet has to bear the logo of the Friedrich Schiller University Jena and the name of the institute where the thesis was supervised.
- c) In case of an external thesis, the declaration “**Institute of ...**” in the heading of the cover sheet has to be amended by the annotation “prepared at ...”.
- d) On the back of the cover sheet (with double-sided printout) or on the following page (with single-sided printout), the two reviewers of the thesis have to be named according to the following scheme at the lower left corner of an otherwise empty page.

Reviewers

1. [Title] [First Name] [Surname]
[Institute/Department] [Institution/Organization]

2. [Title] [First Name] [Surname]
[Institute/Department] [Institution/Organization]

Friedrich Schiller University Jena

Faculty of Biological Sciences

Institute of [name of institute]



[Title of the Thesis]

Master's Thesis

to gain the academic grade as a
Master of Science in the Study Program *Evolution, Ecology and Systematics* (EES)
(M. Sc.)

submitted by
[First Name] [Surname]
born at [Birthplace]

Jena, [Month] [Year]

4 Formatting

4.1 Page Format

DIN A4 (21 x 29.7 cm)

4.2 Page Margins

inwards: 3 cm

outwards: 2 cm

above: 2 cm

below: 2 cm

4.3 Text Format

font	Serif-font such as Times, New York or Palatino, font size 12 pt
line spacing	1,5x
alignment	justification recommended (no indentions)
space between paragraphs	6 – 12 pt (no blank line)

4.4 Heading Line

heading line	1.25 cm
font	Sans Serif-font such as Arial, Helvetica or Calibri, font size 10 pt
line spacing	1x
space to text	1 blank line
paragraph formatting	right aligned (outer edge) recommended

4.5 Footer

footer	1.25 cm
font	Sans Serif-font such as Arial, Helvetica or Calibri, font size 10 pt
line spacing	1x
paragraph formatting	left aligned (inner edge) or justification

4.6 Page Numbers

Essentially required! Place in the heading line or the footer, to the right or centred.

Cover sheet, Declaration of Self-Dependence

no page numbers

Indices prior the body text

Roman numerals

Body text

serial Arabic numerals, don't start chapters with a new pagination

Appendix

A-1, A-2, ...

4.7 Headings

Basically all headings have to be printed in a left-aligned format.

font Sans Serif-font such as Arial, Helvetica or Calibri, font size 12 – 20 pt depending on the structural level. Additional formal distinctions among structure levels such as underlines, bold or italics can be helpful, but must be used consistently for each level.

Headings can be structured in maximal four levels:

1 level 1
 1.1 level 2
 1.1.1 level 3
 1.1.1.1 level 4

Further subdivision may be archived e.g. by bullet points.

Subchapters should only be applied if more than one sub-item is following:

Correct	Wrong
1 level 1	1 level 1
1.1 level 2	1.1 level 2
1.2 level 2	2 level 1
2 level 1	3 level 1

None of the chapters may have the same heading as the title of the thesis; chapters and subchapters must not have the same heading.

4.8 Number of Pages

The Master Thesis should not exceed 60 pages (without the Appendix).

With regard to a possible later publication of the thesis, you should right from the beginning try to follow a short and concise writing style, but at the same time it should cover all essential aspects. The upper limit of 60 pages is, therefore, a rough orientation and should not be exploited if possible.

5 Structure and Arrangement

5.1 Experimental Master's Thesis

- Cover Sheet
- Sheet with Reviewers
- Table of Contents
- List of Abbreviations (*optional*)
- 1 Introduction with Aim of Study/Objective
- 2 Species Description (*optional*)
- 3 Study Area (*optional*)
- 4 Material and Methods
- 5 Results
- 6 Discussion with Conclusion and Perspective
- 7 Summary
- 8 Zusammenfassung (in German)
- 9 Acknowledgements
- List of References
- Appendix (additional Tables and Figures, *optional*; very large datasets may be provided e.g. as EXCEL files on CD/DVD-ROM with indication of the file names in the Table of Appendix Contents)
- Declaration of Self-Dependence

5.2 Theoretical Master's Thesis

- Cover Sheet
- Sheet with Reviewers
- Table of Contents
- List of Abbreviations (*optional*)
- 1 Introduction with Aim of Study/Objective
- 2 Basic Assumptions and Output Variables
- 3 Model Structure
- 4 Model Parameters and Initial Values
- 5 Sensitivity Analysis
- 6 Results
- 7 Discussion with Conclusion and Perspective
- 8 Summary
- 9 Zusammenfassung (in German)
- 10 Acknowledgements
- List of References
- Appendix (additional Tables and Figures, *optional*; very large datasets may be provided e.g. as EXCEL files on CD/DVD-ROM with indication of the file names in the Table of Appendix Contents)
- Declaration of Self-Dependence

5.3 Literature Review as a Master's Thesis

- Cover Sheet
- Sheet with Reviewers
- Table of Contents
- List of Abbreviations (*optional*)
- 1 Introduction with Aim of Study/Objective
- 2 Overview over the Considered Literature
- 3 Literature Review/Synthesis
- 4 Discussion with Conclusion and Perspective
- 5 Summary
- 6 Zusammenfassung (in German)
- 7 Acknowledgements
- List of References
- Appendix (additional Tables and Figures, *optional*)
- Papers (as PDF-files, *optional*)
- Declaration of Self-Dependence

6 Table of Contents

Formatting example for an experimental thesis (sub-items only if needed):

Table of Contents

	List of Abbreviations (<i>optional</i>)	XX
1	Introduction	XX
1.1	Sub-item	XX
1.1.1	Sub-item	XX
1.1.2	Sub-item	XX
1.2	Sub-item	XX
1.3	Aim of Study/Objective	XX
2	Species Description (<i>optional</i>)	XX
3	Study Area (<i>optional</i>)	XX
4	Material and Methods	XX
4.1	Sub-item	XX
4.1.1	Sub-item	XX
4.1.2	Sub-item	XX
4.2	Sub-item	XX
5	Results	XX
5.1	Sub-item	XX
5.1.1	Sub-item	XX
5.1.2	Sub-item	XX
5.2	Sub-item	XX
6	Discussion	XX
6.1	Sub-item	XX
6.1.1	Sub-item	XX
6.1.2	Sub-item	XX
6.2	Sub-item	XX
6.3	Conclusion and Perspective	XX
7	Summary	XX
8	Zusammenfassung	XX
9	Acknowledgements	XX
	List of References	XX
	Appendix (<i>optional</i>)	XX
	Declaration of Self-Dependence	

Please note: the printed page numbers refer to respective first page of a chapter or sub-item, Table of Contents does not include identification of the Cover Sheet and the Table of Contents itself!

7 Indications to Experimental Studies

Experimental studies – or more general empirical studies – are characterised by systematic data sampling and conclusions drawn from that database. The theoretical and conceptual background for the empirical approach of the thesis has to be exemplified. For this purpose the current state of research has to be documented on the basis of up-to-date publications. Based on this review the gap of knowledge should define the objectives of the thesis. Selected survey methods are supposed to provide data that are subsequently analysed, interpreted and integrated with reference to the study objectives. For empirical studies the principles of objectivity, transparency and repeatability are mandatory.

7.1 Introduction with Aim of Study/Objective

The Introduction should provide a structured entering into the topic and an up-to-date overview of the current state of research. In addition the objective of the study should be clearly formulated and specified. The Introduction should allow the reader to comprehend the methodological approach to the raised questions and to follow the central theme of the entire thesis. The Introduction should only be structured in sub-items if really necessary and meaningful.

- a) At first the thesis should be integrated in the specific field research. Explain to the reader why the topic is of scientific and/or social-economic relevance. Also references to current hot-topics may be established.
- b) The current state of research should be primarily documented on the basis of recent scientific papers, e.g. original papers in international scientific journals, meta-analyses or reviews. Textbooks should not be extensively cited here because they normally do not reflect the latest findings in the field. Do not try to give a complete history of the field of research. From the current state of research, relevant gaps of knowledge should be derived. For this, it is not enough to state that, “Such data were not available for species XY.”, but you necessarily have to assert the general scientific advances that arise when these data now are available and analysed.
- c) The aims and hypotheses of the thesis should be conclusively deduced from the identified gaps of knowledge. The formulation of the aims should directly and coherently lead to the basal structure of the thesis and the chosen experimental approach.
- d) For the objectives, the theoretical and conceptual basics are amplified that are necessary to understand the experimental approach. This includes the general background and the specific conceptual framework. You also should clearly specify the focus of your study.
- e) Whenever possible and reasonable, the Introduction should be concluded by clearly formulated working hypotheses, preferably also with corresponding null hypotheses. The following parts of the thesis are dedicated to test the hypotheses statistically on the basis of the sampled data.

7.2 Species Description (optional)

If it is helpful for a better understanding of the survey or if the studied species only serves as a model organism, it can be meaningful to include a separate thesis chapter for the biology of the species. The general description should be kept short, rather the chapter should focus on those aspects that are relevant for the study. If, for instance, the spatial-temporal behaviour is studied, it makes little sense to deal extensively with the age-dependent development of body weight.

If the species description does not exceed 1 – 2 pages, it should be integrated as a sub-item of the Material and Methods section.

7.3 Study Area (optional)

If it is helpful for a better understanding of the survey, it would be meaningful to include a separate thesis chapter for the description of the study area. In particular this applies to “exotic” places (e.g. Antarctica or savannas) or when the specific external conditions are essential background information for the study. Information on the geological and geographical conditions, on land-use, on climatic conditions and on the vegetation belongs here.

If the study area description does not exceed 1 – 2 pages, it should be integrated as a sub-item of the Material and Methods section.

7.4 Material and Methods

The description of the applied methods and utilized materials should– at least theoretically – allow for a reproducible third party repetition. Therefore, all necessary information has to be coherent, complete and detailed enough. At the end of the chapter, the reader should have a clear idea of how what kind of data was gathered.

- a) All utilized materials (chemicals, consumables, bait etc.) as well as all equipment (incl. type designation and manufacturer information with the exception of trivial equipment like e.g. measuring tape, garden tools and workshop tools) has to be specified. For very special materials or equipment also the provider (with town and country of the place of business) should be given when mentioned for the first time. In case of extensive materials a compact overview in the form of a table is recommended.
- b) At first before describing a method, the principle of the procedure or technique should be clarified.
- c) Measured values should be followed by an estimation of measurement accuracy if possible.
- d) The geographical location of the study area should always be defined by geographical or GPS coordinates. In addition maps or drawings should preferably illustrate the study location and the arrangement of study plots. Also sampling plots and trap positions on a study plot, for instance, are more demonstratively described with a drawing rather than merely in the text body.
- e) As with the spatial arrangement, also the temporal organisation of data sampling has to be described explicitly. Also here a graphical sketch (e.g. flow diagram or commented time axis) may be very helpful.

- f) At the end of the chapter, the basic information on the statistical treatment of data should be provided and the applied computer packages (with version number) and R-Scripts, respectively, need to be mentioned. Non-standard test procedures have to be explained through specifications and support of the relevant literature.

7.5 Results

This chapter comprises of an overview of all measured values and the statistical testing. Attention should be paid to a consistent use of parameter names, etc., that were introduced in the Material and Methods chapter. Newly introduced secondary parameters must be adequately defined. The presentation of results should preferably occur in the same order as the hypotheses or the methods, respectively. The presentation of relevant data in a table or a figure is helpful for the reader in order to keep track of the main messages. Note, however, that the same data must **never** been presented both in a table and a figure! Data not directly relevant may be shifted to the Appendix. In the body text, you need to describe what should be learned from the tables and figures. Sentences like “Table 1 shows the development of trapping numbers in the course of the season.” are not allowed. Rather the text should mention what can be seen from the data, followed by a reference to the table: “Trapping numbers increased distinctly in the course of the season (Tab. 1).” The text body should only deal with the data that are relevant to the hypotheses and should not repeat all table data.

Generally **all** results must be presented to the reader, even when they do not fit to the expectations. If some results are not included for further analysis because of methodological errors (e.g. measuring faults) or statistical shortcomings (e.g. too small sample size), this has to be clearly stated in the text. The highest possible transparency of data treatment is imperative for this chapter!

Although the results are the central part of any scientific work, the chapter is often relatively short because it only documents the data that are gathered with the methods described before, and the results of statistical testing. Statistical results should be reported in a condensed manner, e.g. “During the summer the mean body weight of males was significantly higher than of females (t-test, $p = 0,013$).” Evaluating statements, interpretation of the findings and answers to the questions of the study are as a rule not allowed in this section.

7.6 Discussion with Conclusion and Perspective

This chapter interprets the findings documented in the previous chapter according to the hypotheses and objectives that were outlined in the Introduction. Conclusions are drawn and reasoned. In addition, the findings have to be related to the available literature to highlight confirmations or discrepancies. Therefore, the Discussion chapter is characterised by frequent citations. Findings from the Results section should not be repeated and explained again in detail, rather the main findings should be summarised and evaluated with respect to the hypotheses. The Discussion is also the place to deal with critical aspects of the employed methods, to appoint the limits of the survey, and to consider possible sources of error. All aspects of the Discussion, however, should be related to the theoretical background and the hypotheses that were framed in the Introduction.

In the Conclusion section a final evaluation of the study is drawn: What have we learned from the study? What are the theoretical implications of the findings? Are there possible practical

applications? In the Perspectives section, recommendations for continuative future studies can be given to answer questions that the current study could not solve because of, for instance, methodological constraints. Conclusions and Perspectives can be organised in separate chapters or sub-items, if they are quite voluminous.

7.7 Summary/Zusammenfassung

The Summary of the thesis has always to be given in both English **and** German (Zusammenfassung). It should conclude the following elements:

- scientific background [1-2 sentences]
- objective of the study [1-2 sentences]
- methods [experimental design]
- results [main findings with numerical values, if applicable accentuate novelties]
- conclusions [the most relevant ones]

Reminder:

“Why was what surveyed by what means, and what are the results and gains.”

The Summary should not exceed the range of 2 pages.

7.8 Acknowledgements

There are no formal constraints for the acknowledgements, but they should be kept concise. It should contain the following elements:

- supervisor: for supervising the thesis and provision of working conditions
- funding source: for provisioning of money (with project number!)
- research group: for help and support, friendly atmosphere etc.

The acknowledgements may also include private statements (thanks to family, partner, friends etc.), but too private statements (e.g. hints to excessive parties) should be avoided.

8 Specifics of Theoretical Studies

In a theoretical study, data are not sampled empirically but are generated by theoretical models, typically by computer simulations. Nevertheless, a close connection to empirical questions is obligatory. The goals of the modelling approach and the benefits for empirical objectives must clearly be outlined.

8.1 Introduction with Aim of Study/Objective

At first in this chapter the biological question, which is the basis for the modelling approach, has to be described in detail. From that the gap of knowledge should be deduced which the modelling exercise intends to fill. It is also essential to clearly state why a model is helpful at this point and what goals the model tries to achieve.

8.2 Basic Assumption and Output Variables

This chapter is crucial because here the biological problem is translated into language and the logic of the model is given. A model is always a substantial simplification of the real world with a high degree of abstraction. The rules that govern this simplified world are defined by the basic assumptions. As an equivalent to the measured values of an empirical study, the output variables of the model have to be defined. In the following, the output variables are interpreted as the results of the modelling approach.

8.3 Model Structure

This chapter explains the basic structure of the model. First this includes the determination of the employed model type:

- global model for a general understanding of a problem
- realistic model to verify the plausibility of assumed processes (simulations)
- precise model for predictions that can be validated with empirical data

A second aspect of the model type is the underlying model structure:

- deterministic model with fixed parameter values
- stochastic model with random variables
- pattern orientated modelling in which the model is fitted to one or several empirical datasets
- individual-based model (IBM) or agent-based model (ABM)

After this determination, the description of the modelling environment (computer language, modelling package) and the actual model follow. The text should only deal with the very basic structure of the model only as far as it is essential to understand the study. Implicitly, this includes the description of the sequence of model steps and of iteration loops. Extensive additional information on the details of the model as well as an executable version of the model should be provided on CD/DVD-ROM as an integral part of the thesis.

8.4 Model Parameters and Initial Values

This chapter distinctly defines and names all model parameters. Model parameters should be identified with short and intuitively coherent names and abbreviations, respectively. For each parameter the initial value, i.e. the numerical value that it has at the start of a model run, and the range that the parameter can take during the simulation have to be specified. A comprehensive table at the end of the chapter (preferably on one single page) with an overview of all relevant specifications of model parameters is highly recommended.

8.5 Sensitivity Analysis

This chapter documents the procedure and results of the sensitivity analysis. Combined parameter effects should only be included if the analysis hints to serious synergistic effects. If the model is fitted to one or several empirical datasets, the model tuning and the validation results should also be documented here. If applicable, the heading of the chapter may be changed or extended to better reflect its actual content.

8.6 Results

Style and content of the Results chapter should be similar to the corresponding chapter of an empirical study. The only difference is that data were not sampled in the real world, but were generated by the model. With deterministic models, a single model run provides a final value of the output variable. Hence the study will exemplify how the output variable changes depending on the setting of initial values of the model parameters. With stochastic or individual-based models, however, hundreds or even thousands of model runs are necessary because of the stochastic parameters. In these cases, the output variable will have a mean and a variance distribution just as would an empirically measured value. Therefore, statistical testing of the results with analyses of variance, GLMs or even multivariate statistics is indispensable for this type of model.

8.7 Discussion with Conclusion and Perspective

The discussion of modelling results does not differ from the corresponding chapter in an empirical study. However, it is essential to translate the model output back into verbal statements related to the original biological problem (reversal of the abstraction that occurred with the basic assumptions). The Conclusions should point out the scientific insight that can be gained from the modelling exercise. The Perspective should depict possible extensions of the model.

9 Specifics of Literature Reviews

The aim of a literature review is not empirical, i.e. the sampling and interpretation of original data, rather the focus is on evaluation, synthesis and discussion of already published work. A literature review is, however, more than just a compilation of papers on a specific topic. Also for this type of thesis specific aims and objectives must be defined.

9.1 Introduction with Aim of Study/Objective

Here the field of research that is covered by the review should be explained. The objective of the thesis is specified, and the scientific questions are raised that the following review aims to answer. This chapter should comprehensively and concretely reveal the purpose of the literature review to the reader. The specification of the topic is reinforced in Chapter 2 where the inclusion and exclusion criteria for the literature survey are addressed.

The Introduction should provide a description of the topic, an outline of the current state of research, and an overview of the structure of the thesis.

- a) The Introduction should contain all necessary theoretical and conceptual aspects, so that the reader can understand the focus of the thesis.
- b) The current state of research should be documented by up-to-date scientific publications such as meta-analyses or reviews. Textbooks should not be extensively cited here because they normally do not reflect the latest findings in the field. Do not try to give a complete history of the field of research. In contrast to the Introduction of an empirical study, the reader of a literature review should be primarily directed to the prevalent hypotheses and interpretations of the current scientific discussion.
- c) A condensed overview of the structure of the thesis should allow the reader to understand the approach to answer open questions. In addition it should provide a central theme for reading the thesis.

9.2 Overview of the Considered Literature

An accurate description of the survey procedure should allow definite comparative investigations and third party traceability of the literature survey results. For this purpose, the necessary descriptive information must be comprehensible, sufficiently detailed, and complete. In this respect, this chapter corresponds to the Methods and Materials chapter of an empirical study.

- a) utilised databases: which bibliographic databases and search engines were used by the author?
- b) search criteria: the electronic survey for scientific literature offers various search and filter functions. The criteria for the literature survey should be explicitly revealed to the reader. If the survey was restricted e.g. for specific topics, journals, periods or regions, this has to be specified. This also applies if the survey was restricted to particular types of publications, e.g. original papers, meta-analyses or reviews.
- c) survey period: an important filter function is the date of publication. Usually a literature survey does not cover an arbitrary period, but is restricted to a certain timeframe. The starting and ending point of this time frame have to be clearly defined.

- d) search terms: search terms are essential for identifying publications during a literature survey. Therefore, these terms also have to be specified.
- e) additional criteria for the inclusion or exclusion of literature: apart from the implemented filter functions additional criteria can be defined by the author. For instance, the survey can be restricted to specific geographical regions or to particular species or organism groups. If applicable such restrictions need also to be specified.
- f) All employed criteria for the final selection of literature must be made obvious for the reader. If possible, the considered literature should be made available as PDF-files on CD/DVD-ROM.

Also for this type of thesis, the principles of objectivity, transparency and repeatability have to be considered. By presenting detailed documentation of the utilised databases, search criteria, time frame and search terms, the reader can reconstruct the approach. The chapter may be completed with a table overview of the considered literature.

9.3 Literature Review/Synthesis

This chapter corresponds to the Results chapter of an empirical study, but nevertheless distinctly differs. While the Results chapter of an empirical study is merely a documentation of the experimentally gained data, such an approach is not meaningful for a literature review. In the preliminary chapter, it was explained to the reader how the author surveyed the literature. In this chapter, the author gives his or her own scientific contribution to the answering of the questions that were raised in the Introduction. These should be dealt with in the order of appearance to keep to the general theme of thesis.

9.4 Discussion with Conclusion and Perspective

The second essential component of a literature review is a critical consideration of the approach: What are the limits and constraints of the review? What is the general picture that arises from the evaluation?

In the Conclusions a general deduction is drawn: What is the scientific contribution of the review? What are the scientific implications due to the synthesis of single findings? Are there possible practical applications?

The Perspective gives the opportunity to formulate recommendations for future investigations that result from the conclusions, or deals with open questions that could not be conclusively be answered because of the constraints of the selected literature.

10 Publication-based Thesis

The master's thesis is an academic assessment for a final degree, which is valued by two reviewers. Since published papers have already passed a review process, it is for legal restrictions not possible to integrate published papers in the thesis as printed in a journal.

Therefore, material from published papers or from manuscripts in preparation has to be adapted to fit to the formal requirements of the corresponding thesis type (experimental study, theoretical study, literature review). This can be achieved e.g. by dealing with the Introduction, Results and Discussion from the manuscript as separate sections in the matching main chapters of the thesis. Text components, figure and tables may be taken from the publication, but have to be cited properly. In case of papers with several authors you should – as far as possible – only include those parts where your own contribution dominates.

The structure of this type of thesis must always be discussed with the supervisor at an early stage.

11 Listing in Body Text

For listing information in the text the following has to be considered:

- for bullet lists use hyphens (-) or other symbols (e.g. •, ▪, ° etc.) or letters (no numbers!) for sub-items
- “thereof”
when all categories are listed; the sum of categories yields the total sum

Example

total sum	10 000 m ²
thereof A	5 000 m ²
B	3 000 m ²
C	2 000 m ²

- “of these”
when only selected categories are listed

Example

total sum	10 000 m ²
of these A	5 000 m ²

12 Tables

Tables are referred to in the body text: “(Tab. n)” or “Table n”. Normally the reference is at the end of a stating sentence but **never** as a discrete sentence (“Tab. n shows ...”). The table must not be printed before it was referred to in the body text for the first time. Text in the table has to be in English.

The table header is always on the top of the table; further annotations can be given below the table. Tables are numbered consecutively throughout the thesis. For tables taken from literature, the source has to be specified in the header, even if the source is already correctly cited in the body text.

font	Sans Serif-font such as Arial, Helvetica or Calibri, font size 10 – 12 pt for annotations always font size 10 pt
line spacing	1x
space in cell	space between text and cell borders above and below: 4 pt, left and right: 0.2 cm
header	font style: bold
lines	only use horizontal lines, no vertical lines!
table width	should not exceed the body text; landscape format is allowed but should only be used if absolutely unavoidable

Example

Table 1: Measured Parameter

Cohort	Age [days]	Total-C [mmol/l]	LDL-C [mmol/l]	HDL-C [mmol/l]	Triglyceride [mmol/l]
Control	55.4 ± 7.5	4.5 ± 0.2	2.8 ± 0.1	0.8 ± 0.1	1.8 ± 0.3
Treatment	56.5 ± 5.4	8.2 ± 0.3 ^{**}	6.2 ± 0.4 ^{**}	1.6 ± 0.2 [*]	0.9 ± 0.2 [*]

Annotation
*, p < 0.05; **, p < 0.01

Abbreviations
C, cholesterol

Symbols for missing values (specified in the annotations)

0	measured value = 0	-	missing value
•	not measured	*	other reasons (to be specified in the annotations)

Arrangement in Extensive Tables

To increase the readability of extensive tables (about 1 page or more), visual separators (e.g. alternating white and light-gray background colour of lines) may be applied. Extensive tables such as these normally only occur in the Appendix.

Example

Table 2: Measured Parameter

Cohort	Age [days]	Total-C [mmol/l]	LDL-C [mmol/l]	HDL-C [mmol/l]	Triglyceride [mmol/l]
Control	55.4 ± 7.5	4.5 ± 0.2	2.8 ± 0.1	0.8 ± 0.1	1.8 ± 0.3
Group A	58.4 ± 6.4	8.1 ± 0.4	6.1 ± 0.3	1.6 ± 0.2	0.9 ± 0.2
Group B	60.5 ± 3.5	8.2 ± 0.3	6.4 ± 0.4	1.4 ± 0.3	0.8 ± 0.1
Group C	56.4 ± 5.2	8.2 ± 0.1	6.3 ± 0.2	1.5 ± 0.2	1.0 ± 0.3
Group D	54.3 ± 1.9	7.9 ± 0.2	5.9 ± 0.0	1.6 ± 0.1	0.9 ± 0.3
Group E	51.8 ± 4.3	8.1 ± 0.5	6.5 ± 0.2	1.7 ± 0.2	0.8 ± 0.2
Group F	52.5 ± 6.8	8.0 ± 0.3	6.0 ± 0.4	1.7 ± 0.1	0.5 ± 0.4
Group G	53.2 ± 2.9	8.2 ± 0.1	6.3 ± 0.4	0.6 ± 0.3	1.9 ± 0.2
Group H	62.1 ± 0.4	7.8 ± 0.2	6.5 ± 0.5	0.5 ± 0.2	1.8 ± 0.1
Group I	57.5 ± 8.3	8.5 ± 0.4	6.1 ± 0.3	1.6 ± 0.3	0.9 ± 0.1
Group J	55.5 ± 4.4	9.0 ± 0.3	7.2 ± 0.1	1.7 ± 0.1	0.9 ± 0.3
Group K	53.7 ± 3.6	9.2 ± 0.2	6.2 ± 0.4	1.4 ± 0.2	0.6 ± 0.2
Group L	56.9 ± 1.8	8.2 ± 0.8	5.9 ± 1.0	1.6 ± 0.2	0.8 ± 0.2
Group M	59.9 ± 3.1	6.8 ± 0.3	4.2 ± 0.6	1.9 ± 0.5	1.0 ± 0.3
Group N	58.0 ± 2.1	6.9 ± 0.2	3.9 ± 0.4	1.8 ± 0.4	0.9 ± 0.1
Group O	53.9 ± 5.1	8.9 ± 1.1	7.8 ± 0.8	0.3 ± 0.2	2.0 ± 0.2
Group P	60.1 ± 4.8	9.2 ± 0.3	8.4 ± 0.4	0.6 ± 0.1	2.1 ± 0.1
Group Q	64.5 ± 2.0	7.2 ± 0.5	5.8 ± 0.6	1.4 ± 0.2	1.1 ± 0.3
Group R	57.4 ± 3.1	8.1 ± 0.2	6.4 ± 0.2	1.6 ± 0.3	0.9 ± 0.5
Group S	59.8 ± 5.0	9.4 ± 0.6	6.9 ± 0.3	1.6 ± 0.1	0.6 ± 0.2
Group T	56.1 ± 3.6	9.6 ± 0.3	6.6 ± 0.1	1.9 ± 0.2	0.7 ± 0.3
Group U	57.5 ± 6.2	8.9 ± 0.3	8.2 ± 0.9	0.5 ± 0.4	1.9 ± 0.1
Group V	50.3 ± 9.4	3.2 ± 0.6	2.4 ± 0.6	0.4 ± 0.2	1.7 ± 0.2
Group W	52.7 ± 4.7	7.8 ± 0.4	5.7 ± 0.2	1.6 ± 0.1	0.8 ± 0.2
Group X	57.3 ± 2.0	8.8 ± 0.1	6.3 ± 0.4	1.7 ± 0.2	0.7 ± 0.4
Group Y	57.4 ± 5.1	9.2 ± 0.3	7.2 ± 0.1	1.9 ± 0.4	0.9 ± 0.1
Group Z	56.5 ± 5.4	8.2 ± 0.2	6.2 ± 0.7	1.3 ± 0.2	1.0 ± 0.2

Tables that Cover Several Pages

Very extensive tables may even cover more than one page. In such cases the headline with the row denotation must be repeated on each page as the first line of the table. In addition, on each page the table header has to precede the table section again.

Example (first page with table)

Table 3: Measured Parameter

Cohort	Age [days]	Total-C [mmol/l]	LDL-C [mmol/l]	HDL-C [mmol/l]	Triglyceride [mmol/l]
Control	55.4 ± 7.5	4.5 ± 0.2	2.8 ± 0.1	0.8 ± 0.1	1.8 ± 0.3
Group A1	53.7 ± 5.4	4.2 ± 0.3	6.8 ± 0.3	1.8 ± 0.1	0.5 ± 0.2
...					
Group Z1	56.5 ± 5.4	8.2 ± 0.3	6.2 ± 0.4	1.6 ± 0.2	0.9 ± 0.2

< page break >

Example (second page with table)

Table 3 (continued)

Cohort	Age [days]	Total-C [mmol/l]	LDL-C [mmol/l]	HDL-C [mmol/l]	Triglyceride [mmol/l]
Group A2	54.3 ± 6.5	3.5 ± 0.1	1.8 ± 0.2	1.0 ± 0.1	1.5 ± 0.2
...					
Group Z2	57.6 ± 4.3	8.3 ± 0.2	6.4 ± 0.3	1.5 ± 0.2	0.8 ± 0.1

Legend

The legend of the table is normally positioned above the table, should distinctly be differentiated from the body text by indentations on the left and the right (1 cm) and possibly also by using a different font. Table and legend must not be separated by a page break. The legend must be detailed enough so that the reader can also understand the table without knowledge of the body text.

Reminder:

“By what methods was what data measured for which sample and for which period.”

13 Figures

Important, difficult or complex findings should be depicted by figures to make them easier to grasp. In particular this applies to the central findings of the thesis. Normally figures are referred to at the end of a stating sentence in the body text such as tables: “(Fig. n)” or “Figure n”. The figure must not be printed before it was referred to in the body text for the first time. Text in the figure and axis labels has to be in English (except for figures taken from other sources).

The figure legend always follows below the figure. Figures are numbered consecutively throughout the thesis. For figures taken from literature, the source has to be specified in the legend, even if the source has already been correctly cited in the body text.

font	Sans Serif-font such as Arial, Helvetica or Calibri, font size 10 – 12 pt
figure width	should not exceed the body text; landscape format is allowed but should only be used if absolutely unavoidable
photos	always name photographer and – if possible – including the calendar date when the photo was taken

Figures should be as simple and illustrative as possible and should focus on the essentials. Merely decorative elements like unnecessary 3D-effects, shadows or needless use of colours should be omitted. The assignment of line patterns or shadings to specific categories as well as the order of categories has to be consistent in all figures. Stay with to a coherent graphic design for all figures (i.e. same type of graph for similar data). Pay special attention to the complete and understandable labelling of axes!

The type of graph depends on the underlying dataset:

- nominal-nominal data (distributions): e.g. pie charts, bar charts
- nominal-interval data (measurements for groups): e.g. histograms
- interval-interval data (correlations, development over time): e.g. scatter plots, line charts

Legends

The figure legend is always positioned underneath the figure and should be distinctly differentiated from the body text by indentations on the left and the right (1 cm) and possibly also by using a different font. Figures and legends must not be separated by page breaks. The legend must be detailed enough so that the reader can also understand the figure without knowledge of the body text.

Reminder:

“By what methods was what data measured for which sample and for which period.”

14 Citing in the Text

For management of literature and preparation of the List of References it is highly recommended that you familiarise yourself with one of the relevant computer packages (e.g. ENDNOTE, CITAVI, MENDELEY or REFERENCE MANAGER) at an early stage and apply it for the thesis. Either ENDNOTE (Thomson Reuters) or CITAVI (Swiss Academic Software) are available for students and staff of the FSU Jena. As an alternative you can use the free-ware ENDNOTE Web (Thomson Reuters), which has a slightly limited functional range compared to the full version.

14.1 Literal Citations

- restrict literal citations to only a few cases of exceptional importance
- **always** mark literal citation by using quotations “ ... “
- in the body text the source is normally only cited with author and year
- in the List of References the source has to be cited with complete bibliographic information

14.2 Analogous Citations

- analogous citations are not marked by quotations “ ... “
- cite with author and year in the text; does not apply to general knowledge

14.3 Citations in Text

In the text the author (or authors) together with the year of publication normally occur in parentheses at the end of a sentence ahead of the concluding punctuation mark.

Examples

- “In a preliminary study a distinct correlation between mowing frequency and species diversity was shown (Smith 2010).”

The actual formatting depends on the style-sheet of the selected journal (see 15.1). Individual sources are separated by semicolon.

- sources with one author
(author's surname plus year)
Example: (Jones 2001)
- sources with two authors
(surnames of **both** authors separated by “and” plus year)
Example: (Jones and Smith 2000)

- sources with three and more authors
(surname of the first author *et al.* plus year)
Example: (Jones *et al.* 2001)
In the List of References, however, **definitely all** authors must be listed, even if there are 20 or more authors (e.g. for papers in NATURE or SCIENCE).
- citing several sources
ordered alphabetically (by the surname of the first author) or chronologically by the year of publication
Example: (Jones *et al.* 2001; Miller *et al.* 2000; Smith *et al.* 2005)
or:
(Miller *et al.* 2000; Jones *et al.* 2001; Smith *et al.* 2005)
- several sources with the same author
chronological order
Example: (Jones *et al.* 2001, 2004, 2005)
- several sources with the same author and year
continuous small letters following the year (must correspond to the List of References)
Example: (Jones *et al.* 2001a, 2001b, 2001c)
- sources without author
Example: (Anonymous 2008)
- authors that are cited in other sources
Example: (Jones 1920 as cited in Smith 1993)
Jones (with or without year) does then appear in the List of References with the annotation “(in: Smith 1993 ...)” or “(cited in Smith 1993 ...)” with the bibliographic information for Smith 1993.
Note: An unverified adoption of citations should be a very rare exception and is only justified when the original literature is really not available! Whenever feasible the original literature should be looked up before it is cited.

14.4 Repeatedly Used Sources

- Sources have to be cited appropriately each time (with author and year) when they are referred to analogously
- references to the source can be embedded in the sentence or can occur in parentheses or brackets at the end of a sentence

Examples

- “According to Smith (2002) ... “
- “As Smith has already shown 2002 ...”
- “As supported by other studies ... (Jones 2002, 2003; Miller 2000; Miller and Jones 2003; Smith *et al.* 2004).“

15 List of References

15.1 General Remarks

In most literature managing applications, output styles are available as files, which also allow editing a style of one's own. It is, however, highly recommended to utilize a predesigned style of an established journal in the particular field of research. If it is planned to publish the thesis afterwards, it is reasonable to already use the style of the target journal.

- All sources that are cited in the text **must** be listed in the List of References, all sources listed in the List of References **must** be cited in the text.
- Sources are listed alphabetically by the surname of the first author.
- Sources without author are either listed as “Anonymous” or by the first word of the source (e.g. “Statistical Bulletin” or “SPSS”).
- Statistic packages, software and interpreter-environments, respectively, together with the utilised scripts (e.g. R-packages) are cited in depth by mentioning the authors and the bibliographic information where required.
- Unpublished sources may be cited in the text but must be denoted as such (e.g. “personal communication ...”, “Oral presentation at ...”). Such sources are not listed in the List of References (exception: papers “in press”).
- Sources that are not cited in the text may be quoted in a separate list “Further Reading” (this normally only applies to extensive literature reviews).

15.2 Recommendations for the Layout

font:	as body text, with extensive List of References, also font size 10 pt
line spacing:	as body text, with extensive List of References, also 1x
alignment:	justification recommended (no ragged margin)
hanging indent:	1 cm on the left side
space between entries:	6 pt

- sources cited by other authors must be indicated: “as cited in ...”
- titles in foreign languages are not translated; if applicable e.g. with the addendum “(in Japanese with English summary)”
- the title has accord with the source
- Latin names of species and genera should always to be printed in italics irrespective of the printout in the original source
- All bibliographical information has to be formatted **consistently**. Also when the List of References was generated by a literature managing application, a thorough final checking is **always** indispensable.

15.3 Formatting of Bibliographic Information

The formatting of bibliographic information often differs considerably among journals. In the following, some general rules are compiled that apply to most styles. The most important rule is, however, that no inconsistencies are allowed within the List of References (e.g. some journal names are abbreviated and some are with the full journal name, or different abbreviations used for the same journal name).

15.3.1 Paper

Bibliographic Information: Author(s); Year; Title; Journal; Volume (**without** Issue); First Page-Last Page

- paper titles always in small letters (except for proper names) irrespective of the printout in the original source
- for the thesis, journal names should not be abbreviated
- if journal names are abbreviated though, follow "ISI Journal Title Abbreviations" (e.g. refer to http://www.efm.leeds.ac.uk/~mark/ISlabbr/A_abrvjt.html)

15.3.2 Book

Author(s)

Bibliographical Information: Author(s); Year; Book Title; Edition; Publisher; Place; Number of Pages

- book title always in large letters (except for prepositions, conjunctions and articles, e.g. "in", "the", "and", "under" etc., except if they are the first word in the title) irrespective of the printout in the original source
- with several authors, most often "&" instead of "and" before the last author

Author(s) plus Editor

Bibliographical Information: Author(s); Year; Book Title; Edition; Editor; Series Title (if applicable); Publisher; Place; Number of Pages

Chapter Author(s)

Bibliographical Information: Author(s); Chapter Title. In: Editor; Book Title; Edition; Publisher; Place; First Page-Last Page of the chapter

- chapter title always in small letters (except for proper names) irrespective of the printout in the original source (as with papers)
- book title always in large letters (except for prepositions, conjunctions and articles, e.g. "in", "the", "and", "under" etc., except if they are the first word in the title) irrespective of the printout in the original source

Book in Several Volumes

Bibliographical Information: Author(s); Year; Sub-title of the Volume; Editor; Book Title; Edition; Publisher; Place; Number of Pages

15.3.3 PhD Thesis

Bibliographical Information: Author; Year; Title; “PhD Thesis” University; Place; Number of Pages

If the thesis is not easily available, the addendum “unpubl. PhD Thesis” should be adjoined. Diploma, Master and Bachelor theses may be cited accordingly, but due to their generally limited availability this should be restricted to a minimum and only if unavoidable.

15.3.4 Newspaper

Bibliographical Information: Author(s); Year; Title; Newspaper; Issue (Year Month Day); Place; First Page-Last Page

15.3.5 Grey Literature

Bibliographical Information: Author(s); Year; Title; Source; First Page-Last Page

Grey literature means abstracts in conference volumes, reports, expertises and similar works that are impossible or difficult to access and that are not reviewed in a well-defined process. Such sources should, therefore, only be cited if absolutely necessary. Nevertheless, especially in theses with an applied background, e.g. in nature conservation, such sources are often unavoidable.

15.3.6 Online Sources

When citing in the text, the same year as in the List of References must be indicated!

Bibliographical Information: Author(s); Year (of issue or of latest update if available); Title; Status (date when the document was viewed); URL (from where the document was acquired)

Example

Smith E. (2001): Birds of Antarctica. (viewed at 02.01.2012);
http://www.smith.de/m_f.html

If necessary or known, special indications for locating the document should be specified, e.g. “(only accessible for authorised user groups)”, “(costs upon demand)” etc.

URLs are **not** included in automatic hyphenation and justification rules. Never add hyphens that are not part of the URL address! The URL is closed without a full stop. If unavoidable a line break (without hyphen) may occur after address elements such as a full stop, hyphen or slash.

If online sources are used extensively, it may be reasonable to compile them in a special section of the List of References and to order them alphabetically by the author names. If a printed version is also available, this should preferably be cited in the usual way.

15.4 Manual Post-Editing

The author is responsible for the correct bibliographical information in the thesis. During the import from online-databases as well as during the data processing by literature managing applications, formal mistakes in the generated List of References occur frequently. Therefore a thorough final check of the List of References is indispensable!

Frequent formatting mistakes are:

- printing parentheses even when the citation is embedded in the text
 - wrong syntax for journal names and abbreviations, respectively
 - missing bibliographical information (volume, number of pages, place, number of pages)
 - inconsistent order of first and surname
 - inconsistent use of lower case and capital letters (sometimes author names are completely printed in capital letters)
 - inconsistent notation of page numbers
 - journal names printed completely in capital letters
 - all capital letters for the title of papers
- ENDNOTE corrects the formatting of the paper title automatically when under 'Edit/ Output Styles' the option 'Sentence Style Capitalization' was chosen for the item 'Bibliography/Title Capitalization'. Either change the option in ENDNOTE or correct manually.
- Missing or incorrect special characters (i.e. ä, ö, ü, ø, å, æ, ê), particularly in author names

Such mistakes are most often due to faults in the database and are not caused by the literature managing software. Therefore the corrections have to be done manually either by changing the source information or by correcting the final generated List of References.

It is **strongly** recommended to save a copy of the file prior to the automatic formatting with the chosen style, and a second copy prior to the manual post-editing, so that you can always go back to a prior starting point! This is also most helpful when a manuscript is rejected by one journal and – after a careful revision – is submitted to another journal with differing formatting rules for the List of References.

16 Declaration of Self-Dependence

- Obligatory on a separate page (last page of the thesis without page number) with the following wording:

Declaration of Self-Dependence

Herewith I declare that I prepared this thesis on my own, that I did not use any other sources and resources than those that are specified, that all arguments and ideas that were literally or analogously taken from other sources are sufficiently identified, and that the thesis in identical or similar form has not been use as part of an earlier course achievement or examination procedure.

.....
Place, Date

.....
Signature

- **Note:** A plagiarism is given if the above Declaration of Self-Dependence is violated, i.e. if ideas or arguments or even complete text sections are taken from other sources without a proper indication and a reference to the source. Plagiarisms are categorically marked with 5.0 and in serious cases even revision is not permitted!

17 Recommendations for Working on the Thesis

17.1 Orthography

In addition to the quality of the scientific content, the first impression that the reader gets from the thesis is highly affected by its outward appearance, which also affects the mark. The outward appearance does not only mean the layout but also includes the readability of the text, the correct orthography and punctuation, and the consistent use of words and scientific terms.

Hints for the Orthography

- print out longer text sections for proofreading; mistakes are often missed when proofreading is done on the monitor
- utilise the active or automatic spelling and grammar check functions of the word processing application in English
- extend the library of the word processing applications for often used specific terms

17.2 Time schedule

All deadlines are mandatorily defined in the respectively valid version of the examination regulations. The formal specifications are binding and must be met.

17.2.1 Deadlines

- registration for the **Vertiefungspraktikum** (“in-depth practical course”, data collection for the thesis) with a specific module sheet (available at the institute), stamped with date at the Study and Examination Office of the faculty, date is the start of the Vertiefungspraktikum
- time frame for the Vertiefungspraktikum is 6 months maximum and 3 months minimum
- completion of the Vertiefungspraktikum and marking by oral examination (60 min.)
- registration of the **Master Thesis** with a specific form (to be downloaded from the pages of the Study and Examination Office) at latest 6 weeks after reaching 90 ECTS, earliest when 60 ECTS are reached (for field studies during the summer semester)
- delivery of the form at the Study and Examination Office is 2 weeks before the actual start of the work on the Master Thesis (for checking the information), title of the thesis must be in its final version, changes in the title may be announced in written form until one week before the thesis is delivered
- after registration for the Master Thesis, there are 6 months maximum allowed until delivery, the earliest possible delivery is 2 months after registration (reasonable exceptions are possible), extension of 3 months maximum is possible (written request with explanatory statement required)

17.2.2 Delivery

Formal specifications according to the examination regulations are binding and must be met.

3 copies for the Study and Examination Office

(2x reviewers, 1x University Archive and Examination Office, respectively)

3 electronic files on CD (PDF and Microsoft WORD; not protected or encoded) for the reviewers and the Study and Examination Office (check for plagiarisms)

- You should regularly contact your supervisor while working on the thesis. By all means, a preliminary version of the thesis should be handed to the supervisor for corrections and comments before you deliver the final version.
- For an external thesis, the topic and the formal regulations should be reconciled with the internal supervisor at an early stage; in the case of conflicting standards, the requirements of the main supervisor (e.g. the external supervisor) have to be obeyed primarily.

17.3 Contact

Basic information is provided by the current examination regulations of the study program. Here you find the binding specifications for admittance, time schedules, extent, review process, etc.

For further questions regarding organisational details, contact the Study and Examination Office. You may also visit the according website of the faculty for frequently asked questions (FAQ): Study → Students → FAQ. The registration forms, cover sheets and further information are also available on the website: Study → Students → Documents and Application Forms for Students.

For general questions about literature research, Dr. Ina Weiß at the Science Information Centre is in charge.

For all specific questions regarding your thesis, contact your supervisor. In particular this applies to all aspects with regard to contents and scientific issues.

17.4 Hints and suggestions for the Literature Research

- textbooks at the natural sciences library of the ThULB for first reading
- research in scientific databases: Web of Science, PubMed, BIOSIS, SciFinder (Chemical Abstracts and Medline) etc. ...
- online catalogue of the ThULB and the GBV-catalogue (online view and interlibrary loan of books and papers are possible)
- support for literature research and training for use of databases at the Science Information Centre (Dr. Ina Weiß, Bioinformatics)