

Faculty of Organic Agricultural Sciences

Examinations board

Guidelines to Scientific Texts

(Bachelor and Master theses, term papers)

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Table of Contents

Preliminary Remarks	3
1 Basic Guidelines	4
2 How to write an exposé	6
3 Formal Design of your Scientific Text	7
3.1 General	7
3.2 Quotations.....	7
3.3 Front page	8
3.4 Indexes.....	8
3.5 Figures and Tables	8
3.6 Attachments.....	9
3.7 Affirmation	9
3.8 Technical Support	10
4 Structure of your Scientific Text	11
4.1 Introduction	11
4.2 Literature review / State of the Art.....	11
4.3 Material and Methods	12
4.4 Results	12
4.5 Discussion.....	12
4.6 Conclusions	12
4.7 Summary	12
4.8 Bibliography	13

Preliminary Remarks

This manual is limited to a few general aspects requiring careful attention when preparing written papers, project theses, etc. For a more detailed introduction into the process of drawing up scientific texts, the following books are recommended:

- Anderson, J. and Poole, M. (2001): Assignment and thesis writing. 4. ed., Brisbane: Wiley.
- Booth, V. (1995): Communicating in science: writing a scientific paper and speaking at scientific meetings. 2. ed., Cambridge: Cambridge Univ. Press.
- Day, R.A. (1998): How to write and publish a scientific paper. 5. ed., Westport: Oryx Press.
- Holtom, D. and Fisher, E. (1999): Enjoy writing your science thesis or dissertation: a step by step guide to planning and writing dissertations and theses for undergraduate and graduate science students. London: Imperial College Press.
- Wagenen, R.K. van (1991): Writing a thesis: substance and style. Englewood Cliffs, NJ: Prentice-Hall.

Additionally, discipline specific requirements concerning your scientific texts should be discussed with your supervisor.

In general, before starting your actual research it is not obligatory to write a formal exposé (draft). However, it will accelerate your workflow and improve the quality of your work, especially in the early stages of your scientific work, and it is helpful to clarify your ideas and temporal capacities. It should include a brief outline of the content, and the structure of your envisaged paper. In this phase it is advisable to conduct a joint discussion with your supervisor(s).

1 Basic Guidelines

Originality and independence

Originality and independence are important quality criteria of every scientific text. The requirements on these criteria differ depending on the level of your intended graduation.

Research and citation

Every scientific text requires correct and careful referencing. The reader must at all times be able to identify those text passages which have been adopted from other persons' scientific accomplishments. It needs to be clearly recognisable for the reader when you make use of other people's intellectual property.

External factors

Your final text should include a full disclosure of all factors such as support via grants, third-party funding or economic benefits that, if not mentioned, might arouse suspicion concerning the independence of your academic opinion.

Attribution of statements

The basic rule of every scientific work is to carefully pay attention when quoting an author. Please make every effort to avoid changing the underlining meaning of the author, both in quotation and in rephrasing.

Translation

When translating a foreign language original quotation, the original source must be indicated. When free-translating a foreign language one should be careful not to make implications not present in the original text. Third-party translations need to be indicated.

Subject-specific common knowledge

It is not necessary to verify common knowledge of a discipline by a quote or a reference. What represents general common knowledge, should be assessed from the perspective of each discipline. In case of doubt, please consult your supervisor(s).

Plagiarism and data manipulation

Plagiarism, the practice of taking someone else's work or ideas and using it without quoting/citing/referencing, is a serious offence against the rules of correct scientific working practice. The same applies to the manipulation of data. In general, plagiarism and data manipulation are cases of deception. If, for example three or more text passages are identified as somebody else's text and are not cited according to these guidelines, the scientific work is failed. In order to identify plagiarism supervisors may use plagiarism-identifying software.

Own work and text

The transfer of previously published own text components into a new context is allowable when it is verifiable or quoted in the text itself.

Ghostwriting

To cooperate with ghostwriters – persons who contribute their texts or text components to your scientific work – and to pass off their work as one's own is a serious offence against the rules of good scientific practice.

Multiple Authorships

In group papers the authorship of each participant has to be clearly identifiable. A person who hardly made a difference with his/her contribution to the scientific work is not to be named as an author. In principal, honorary authorships or authorship according to a hierarchy without own substantial contribution are regarded as scientific malpractice.

Dual responsibility

It is mainly the author's responsibility to observe the basic rules of scientific practice. However, the supervisor(s) and/or examiner(s) are in charge, too. The duty of the supervisor is to inform the examinee in the beginning about the basic rules of scientific practice and if necessary to clarify points of uncertainty. If the supervisor is in doubt about the candidate's adherence to academic rules, it is his duty to consequently pursue an investigation into his doubts.

As far as the Examination Regulations allow, the supervision may be (partially) delegated. The final responsibility, however, is extremely personal and never delegable. Therefore this responsibility remains with the examiner. In special cases, the examiner is allowed to seek expert advice (e.g. in interdisciplinary projects) during the supervision process.

2 How to write an exposé

The intention of an exposé is to clarify goal(s), content, and process of the planned scientific work between student and supervisor(s). Altogether it should include two to four pages (Project or Bachelor thesis) or five to seven pages (Master thesis) (including a provisory table of contents , a time schedule and, if necessary, a literature list). The first conversation with the supervisor should be as early as the registration of the scientific work. Modifications or additions to the exposé, agreed during conversations, should be recorded.

Introduction and way of looking at research problems

In this part, background information and the current state of research are to be presented based on literature research. This discussion of the current state of the art/status quo in the field of interest must lead the reader to the objective of the scientific work and the formulation of research questions.

Objective and presentation of questions

This section defines the objectives of the scientific work and the formulation of research questions. This is an important part because it determines the framework for the further research process and the methodology. To make sure that the workload is appropriate, you should discuss the objective/formulation of research questions/hypotheses with your supervisor.

Methodology and schedule

At this point you should describe the methodology (e.g. literature review, survey, observation, test procedure) and the schedule of data collection that helps you answering the research question(s). In addition give an explanation about the way of proceeding and the study framework (e.g. in surveys): definition of the chosen population, the sampling strategy, and sample size. Part of the exposé should also include a description of the whole research process – from data collection to data analysis and methodological reflections.

Time schedule

It is very important to put some effort into the draft of a timeline in order to make it realistic and feasible. The timeline should take into account the amount of time each step of research will require and consider the given time limits (e.g. eight weeks for a Bachelor thesis). You may create a timeline in graphical form for ease of use and evaluation.

3 Formal Design of your Scientific Text

3.1 General

Spelling

Great emphasis has to be put on the correct use of punctuation marks and English spelling rules. Please use the latest edition of an English dictionary.

Formatting

- consecutive numbering of pages with Arabic numerals (1,2,3...)
- margin: 2.5 cm left/right, top/bottom
- font size text: equivalent Times New Roman 12 or Arial 11
- line spacing in the text 1.3 or 1.5 (Bibliographical references: line pitch 1.0)
- font size footnote: equivalent Times New Roman 10 or Arial 9 (line pitch 1.0)
- text orientation: justification

Footnotes

Requirements concerning footnotes may vary depending on the scientific discipline. The social sciences and humanities use them more frequently than the natural sciences. Important context based information should not be placed into the footnotes, but into the main text.

3.2 Quotations

All thoughts or data of other authors must be cited correctly within the text, tables or charts. Word-for-word, indirect and secondary quotations occur as follows:

- Word-for-word: "text" (author year, page)
- Indirect: text (author year, page)
- Secondary (avoid if possible): text (author year, page, "cited from", author year)
- Two authors: text (author 1 & author 2 year, page)
- More than two authors: (first author et al. year, page)
- Oral notification: first name, family name (oral), date

Rules of quotations should allow the reader to check your statements and to find the supporting literature that you used in your paper more easily. However, as there are no uniform rules to quote literature, one quotation style needs to be chosen and consistently employed throughout the text. Variations, e.g. if the page number has to be indicated, need to be discussed with your supervisors.

Quotation rules are based on conventions and differ depending on the discipline or on the publishing house. Thus, quotation rules are predefined and have to be strictly used. The same applies for the university context; depending on with whom you will write your project, bachelor- or master thesis or your internship report, you will be confronted with various requirements according to the supervisors' preferences or the scientific traditions:

- Is there a literal citation in the text, usually the page will be indicated from which the quote originated.
- In the natural sciences, literal citation is only rarely used (e.g. definitions).
- By all means, you should always question if the citation is easy to find in the original source, even if you do not employ literal citations. If, for instance, you refer to a special passage in a textbook you should indicate the page(s), because you cannot expect the reader to go through the whole book.
- It is generally assumed that journal articles and relevant chapters of books etc. are sufficiently read by the author of the thesis.

3.3 Front page

The front page should be designed corresponding as follows:

<p>University Kassel</p> <p>Faculty of Organic Agricultural Sciences</p> <p>Course of studies: Sustainable example science</p> <p>Bachelor-/Project-/ Master thesis</p> <p>Topic</p> <p>Scientific work title</p> <p>1. Examiner: Prof. Dr. Ulrich Hamm Faculty of Agricultural and FoodMarketing</p> <p>1. Examiner: Dr. Bernhard Example Faculty of Sustainable Example Science</p> <p>submitted by</p> <p>Max Mustermann (date and place of birth) Matriculation number: 12345678</p> <p>Witzenhausen, September 2014</p>
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Figure 1: Sample front page

3.4 Indexes

The table of contents is on a separate page after the front page. It presents the contents and the structure of the present scientific work as well as the focal points of the author.

The table of contents is followed by a list of abbreviations, a list of figures and a list of tables, provided with Roman numerals (e.g. I list of abbreviations, II list of figures, III list of tables). In General, abbreviations should be used very cautiously. If only a small number of figures and tables have been used, they can be summarised within a single index.

3.5 Figures and Tables

The task of figures and tables is to depict facts. The representation (e.g. figure or table) has to be self-explanatory and must contain all information necessary for a clear understanding.

Abbreviations must be explained in a legend or as a key in footnotes, in the caption of the table or figure; sample sizes and significances must be indicated etc. Sources of secondary data need to be written in the table or figure caption and must be listed in the bibliography with all other sources. Cross-referencing in the text is essential for both, tables and figures at least once in the text in ascending order. Figures and tables are added left justified to the text (see table 1 below) in addition to a meaningful caption. Captions of tables are located on top, while captions for figures are at the bottom. Figures and tables are numbered and listed in the list of tables or figures.

Table 1: Sample table

Table x: Assessment of course of study in agriculture by students (in percentage of those interviewed)

	applies completely	applies more or less	partly	applies more or less	applies completely	
boring (n=380)	7.2	27.3	42.4	19.7	3.4	interesting
one-sided (n=379)	3.4	14.5	28.2	43.3	10.6	many sided
high expectations (n=375)	8.8	32.3	42.4	15.2	1.3	low expectations
theoretical (n=377)	2.2	9.5	32.6	36.9	18.8	practical
large learning effort (n=378)	7.4	32.8	46.6	11.4	1.8	small learning effort
unimaginable for me (n=380)	43.4	25.3	16.6	11.3	3.4	imaginable for me

Question: I shall now give you several word pairs to the course of study of agriculture. You must decide according to this table how you would assess.

Source: Hamm et al. 1999, p. 55 (translation from German)

The choice of of representation (e.g. figure or table) you use is a matter of taste. The same information should be only represented once, either in the text, as a table or as a figure. In the text it is enough to point out the most important statements of the chart or figure. When referring to figures or tables in the text it is sufficient to explain the main results; details can be taken from the table or illustration itself. For example “Hens of the test group had a higher daily gain than the control group ($p=0.03$, Tab. 1)”.

3.6 Attachments

Additional information that is not necessary for the understanding of your findings and your research process but considered as supportive for the reader may be part of the attachment. Raw data must be added on a CD-ROM. Attachments are numbered consecutively just as figures and tables and should also be cross-reference them in the text.

3.7 Affirmation

At the end of every scientific work written at University of Kassel, an affirmation is necessary, which includes the date and the author’s signature.

“I herewith assure that I have completed the present thesis independently and without unauthorised help other than those cited in the thesis. No part of this work has been used in another thesis qualification procedure before. I have marked all places in the thesis, which

are taken verbatim or analogously from published or unpublished writings. I agree that this thesis could be examined for plagiarism with anti-plagiarism software. For this reason I provide the thesis in electronic and anonymous format.”

3.8 Technical Support

Not only the content but also the design (graphic illustrations and the implementation of agreements on the structure, source selection, and quotation patterns) of a paper has a certain influence on the overall grading. The use of software applications and IT-services of the university may support your efforts in this respect. In particular the following resources are available:

Research work

To find literature on your envisaged topics please consult textbooks (often for basic knowledge), peer reviewed articles in scientific journals (genuine scientific research or overview articles; often in English), presentations from scientific conferences or publications, and research projects. For the current state of research, scientific articles are frequently the best choice. Often conference proceedings are more up to date, but are less detailed or include only preliminary results.

Literature search is possible via library databases such as OPAC (Online Public Access Catalog), KARLA, HeBis, KOBRA and scientific databases such as Web of Science (<http://apps.webofknowledge.com>), PubMed (www.ncbi.nlm.nih.gov/pubmed), Science Direct (www.sciencedirect.com), Organic Eprints (www.orgprints.org) or via internet search engines like Google Scholar.

The use of more than one database is recommended; your supervisor will assist you here. It is possible to download full articles from Science Direct or the homepage of other scientific publications to which the University of Kassel has access. The link <http://ezb.uni-regensburg.de/ezb.phtml?bibid=UBKAS> indicates the access rights. To get access you need to log in within the network of the university (e.g. from the library or from home with VPN-access). Open-access-articles can be downloaded as full text version.

Helpful software applications

Virtual Desktop (Intranet with software applications and Online Database): <http://www.uni-kassel.de/its-handbuch/computerarbeitsplaetze/virtuelle-desktops.html>

Dreamspark (cost-free use of Microsoft applications): <http://www.uni-kassel.de/its-handbuch/daten-dienste/softwarecampuslizenzen/microsoft-dreamspark.html>

Citavi (Quotation software, training offer at the library): <http://www.uni-kassel.de/ub/footer-navi/a-z/citavi.html>

Zotero (cost-free Quotation software): http://zotero.org/support/de/quick_start_guide

4 Structure of your Scientific Text

The content needs to be coherent. A logical thread should be recognisable in the table of contents. A well-organized table of contents allows a reader to get a first impression of the author's argumentation. The common format of a scientific paper includes the main chapters Introduction, Literature Review/Recent Findings/State of the Art (this section is more often used in social sciences than in natural sciences), Material and Methods, Results, Discussion, Conclusions and the Summary. The main chapters have to be divided into reasonable subsections. The length of a subchapter is an indicator of the importance of the content. Equal-sized subchapters symbolize similar emphasis. It is important to choose chapter headings that indicate correctly and precisely what the chapter entails. At the same time, chapter headings need to be kept short and understandable. The bibliography follows after the summary and will not be part of the numbered chapters – just as the attachment.

In the table of contents it is advisable to employ a numerical classification. The single structure topics should be equal, sub- or super-ordinated, according to the role they play in the author's argumentation. Detailed sub-division leads to over-complexity and hinders the comprehension process. If possible there should be no more than three subdivisions, maximal four. The number of subdivisions should conform to the length of the text. A super-ordinated structure topic should not contain less than two subdivision items.

The structure that has hitherto been suggested refers to empirical or experimental works. Scientific works that refer to literature research or essays or studies based predominantly on literature may feature a different structure that should be discussed with the supervisor in individual cases.

4.1 Introduction

An Introduction should be short and contain the following points:

- Aims and Objectives: outline the research problem (knowledge gap) and describe the significance of the topic
- Objectives – as precisely written as possible, include research hypothesi(e)s in experimental or analytical works. These could be framed as questions
- Ways of proceeding – what can the reader expect; how is the topic addressed. This might not be applicable in experimental scientific works because of a special standard “natural science” design: Aims and Objectives in the Introduction; Material and Methods; Results; Discussion; Conclusions.

4.2 Literature review / State of the Art

Generally the literature review should provide the reader with a basis of understanding the topic. Often it needs to be decided which literature to use in this chapter and which in the discussion. Repetitions should be avoided as much as possible. It is not about stringing summaries of various articles together, but an active synopsis and assessment of available information. In which points do the different authors agree or disagree? What might be reasons for disagreements? What could be reasons for objections? Can evaluations and interpretations be substantially proven and where are knowledge gaps? Which statements

are based only on assertions or assumptions, which statements have been verified through research?

4.3 Material and Methods

This chapter encompasses a clear, objective description of what has been done in the research process. It should be as short and at the same time as complete as possible. The chapter only contains facts about the actual experimental setup and procedure and important but minor issues. Quotes from literature are usually the exception in this chapter, but are appropriate if methods and definitions have been developed by other researchers. Complex facts can be displayed in figures or charts. Very important is the clear and honest presentation of the experimental scope. If, for example, data of only 12 out of 20 people were examined due to whatever reason, it must be mentioned. A clear explanation of the applied statistical methods belongs to this chapter, too. If the text deals with animals, the chapter should be named "Animals, Material and Methods". This and the following chapter should use simple past.

In the chapters: "Material and Methods", "Discussion", and "Results" it is reasonable to use the same order to discuss the same facts.

4.4 Results

This chapter as well the previous one is a pure representation of facts without interpretation. It should be as short and complete as possible. This includes indications of the prevailing sample size, the degrees of freedom and/or the statistical parameters. The results are as a rule presented in the past tense. If you are sure that the results are generalisable, the use of the present tense is permitted.

4.5 Discussion

There are different ways of structuring the discussion chapter. You can start with general aspects leading to more detailed findings or you will start with methodological considerations proceeding to your empirical findings. Sometimes it is helpful to repeat special results of your research. However, repeating the results in full length should be avoided. In this chapter you will have to justify why special things were done in a certain way or what went wrong although planned.

4.6 Conclusions

No new thoughts or results should appear in this chapter. The conclusions should briefly give the answer to the question that was asked for in the Introduction. Additionally, try to outline a perspective on further questions that resulted from your research. Give some hints what further implications and outlooks may be drawn from your results and, if possible, if there is any practical or even political use in your findings ("so what"). This chapter closes the circle and may not be mixed up with the following summary!

4.7 Summary

On one page, summarise aims, methods, results and discussion of the whole text.

4.8 Bibliography

Each article, each book, each author that was quoted in the text has to be listed in this chapter. Abbreviate or write out (to avoid mistakes) journal titles, translate foreign literature (except English-speaking). Order of the references in the text (e.g. in the case of several quotes that are named at the end of the sentence) occur as followed:

- In alphabetical order of the authors` family names; missing author information quote with ANONYMOUS
- First single authorship, then dual authorship , then team authorship, e.g.:
 - o Guinnane, T. W., 1997, *The Vanishing Irish: Households, Migration and the Rural Economy in Ireland, 1850-1940*, Princeton
 - o Guinnane, T. W., Ó Grádá, C., 2002, *Workhouse Mortality and the Great Irish Famine*, in Dyson, T., Ó Grádá, C. (eds), *Famine Demography*, Oxford, pp. 44-64
- In chronological order if you have an author or an authorship team with more than one work
- If several publications from a single author / collective of authors from the same year, add a letter to the year (e.g. XY 2015a)
- Name affix put after the family name e.g.: SENCKENBERG, G. von, 1978

Common requirements when citing literature are:

- Understandable and consistent
- Precise (sort of source)
- Complete (all necessary information to the sourcing)
- Short (in published limited print scope)

When quoting a single article in a book (a collected edition), use the following example:

Knierim, U., Sundrum, A., Bennedsgaard, T., Roiha, U., Johnson, P. F., 2004, *Assessing animal welfare in organic herds*, in Vaarst, M., Roderick, S., Lund, V., Lockeretz, W. (eds), *Animal health and welfare in organic Agriculture*. CBA International: Wallingford, pp. 189-203.

It is usual in some disciplines to name the collected edition again in the Bibliography.

Vaarst, M., Roderick, S., Lund, V., Lockeretz, W. (eds), 2004, *Animal health and welfare in organic Agriculture*. CBA International: Wallingford.

Internet references have to be listed in the bibliography as well. There are two kinds of internet resources: articles in online scientific journals and materials published on a website. Articles in scientific journals are often published twofold: in an electronic and in a printed version. When a source was published in printed media, it will be listed as a printed publication:

Sage, C., 2013: The interconnected challenges for food security from a food regimes perspective: Energy, climate and mal consumption. *Journal of Rural Studies* 29, 71-80.

The electronic online form is cited in the following manner:

Sage, C. 2013: The interconnected challenges for food security from a food regimes perspective: Energy, climate and mal consumption. *Journal of Rural Studies* 29, 71–80, doi:10.1016/j.jrurstud.2012.02.005.

Internet sources should be cited in the same manner as scientific articles, including the title, author(s), etc. It is especially important to mention the date on which the internet source was last seen containing the relevant information. The information should be labelled with an addition “Online on the Internet” or a similar notice and provided with the Uniform Resource Locator (URL):

Taprogge, R.: Introduction: Quotation from Online sources in the Internet. URL: <http://www.muenster.de/taprogge/ma/vw.htm> [Accessed 20 October 2010]

For scientific articles you do not need the access date.

When specifying e-mails in the bibliography notice that a personal e-mail is not public. In case of publishing email addresses the address owner needs to be asked for permission due to data protection issues:

Private person, Ilse: RE: Your request. 25 September 2014. E-Mail from Ilse Privatepersonilse@private.life.de to Markus Muster muster@u-muster.de

In any case: a clear distinction should be made between scientific (scholarly) books and articles on the one hand and popular sources on the other hand, the latter ones including websites mentioned above.