FRANKFURT UNIVERSITY OF APPLIED SCIENCES

Proposal for the formal design of scientific papers

Fachbereich 3
Wirtschaft und Recht | Business and Law

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1 Preliminary note

For the preparation of scientific papers (term and seminar papers, master's and bachelor's theses,…) it is recommended to observe the following rules. The introductions are not exhaustive; rather, they constitute a selection of those formal requirements whose non-observance is particularly frequent and serious. Keep in mind that form and content of a scientific paper are closely related. For this reason, it is recommended that you familiarize yourself in detail with the techniques of scientific work. In case of questions concerning the form of the paper (e.g. regarding the structure, citation technique, references, etc.), it is advisable to consult closely with the supervisor, especially since each discipline has its own preferred citation style and form of presentation. Scientific papers are independent performances and only exceptionally group performances according to the respective examination regulations. For further information, please refer to the General Regulations and the relevant examination regulations.

2 What does scientific work mean?

Scientific work is a planned, orderly procedure with the aim of gaining new knowledge and solving practical problems. This includes linking up with worldwide scientific knowledge, analyzing existing knowledge and keeping abreast of current discussions in the scientific community. The independently gained knowledge and developed solutions must be comprehensible, verifiable and usable for others.

3 Types of scientific work

3.1 Literature work

The literature paper is primarily concerned with the scientific literature on a particular subject. The description, compilation, comparison, systematics or the analysis are the main basic forms of writing in a literature paper.

3.2 Theory work

Theory work is very similar to literature work and contains reflections on a question.

Theoretical work focuses on the examination of scientific theories - e.g. comparison of theories, thesis - antithesis - synthesis, systematics.

3.3 Empirical work

By means of empirical work, data are collected, checked and interpreted on the basis of a concrete question. The data can be collected e.g. by surveys, interviews or experiments. The theoretical embedding of the topic and the state of research on the object of investigation must not be missing. In advance, the research question and, if necessary, the hypotheses must be formulated and subsequently tested.

4 General formal notes

4.1 Font

The papers are to be typewritten in Arial/Times New Roman. The text should be justified. If the spacing in the sentences is too large, it is recommended to work with hyphenation.

4.2 Font size

The font size in the text must be 12 pt. The individual sections of the paper must be preceded by the corresponding bullet points (headings in normal size up to 14 pt). For footnotes, the font size must be 10 pt.

4.3 Line spacing

The line spacing in the text should be **1 1/2-line**, in the footnotes only **1-line**. The spacing between paragraphs should also be **1 1/2-line**.

4.4 Margins

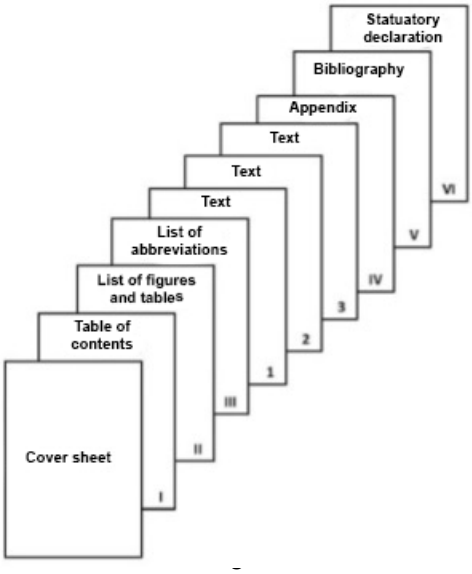
The correction margin must be about 1/3 of the page (4 cm left, 2 cm right). Top and bottom 3 cm each.

4.5 Presentation of page numbers in scientific papers

A scientific paper should use the following page number formats:

- Title page without page number
- Pages for indexes before and after the text part with Roman page numbers (I, II, III, IV, etc.)
- Pages for the text part with Arabic page numbers (1, 2, 3, etc.)

Example:



4.6 Scope of work

The length of the text part for scientific papers is usually 10-15 pages for term papers, at least 35 pages for bachelor's theses and at least 50 pages for master's theses.

5 Structure of scientific papers

5.1 Title page

The title page shall include:

Subject of the work,

the passage: ***Term paper/ Bachelor thesis...,***

Optional: *Module name/ Unit*

submitted by,

Topic author (***reviewer***), second reviewer,

Name and surname, matriculation number of the author, address,

semester/date of issue and submission.

On a voluntary basis: *email and phone number*

A template for the design of the title page of theses can be found here.

5.2 Table of contents

The table of contents precedes the body of the text. For each bullet point, indicate the page number of the paper where the treatment of that section begins. It is preferable to use combinations of numbers to identify the bullet points.

Digit combination	Letters and numbers	Numbers and letters
1.	A.	I.
2.	B.	II.
2.1	I.	A.
2.1.1	1)	1.

It is imperative to avoid structuring errors. For example, there must not be only one sub-item for each bullet point, but at least two sub-items. In principle, no text should be integrated between the superordinate and subsequent subordinate outline levels. However, it is permitted to insert text in exceptions if this is useful for explaining the subsequent section and the text is limited to a few sentences.

5.3 List of figures and tables

Tables and figures are to be included in the respective index. They shall be numbered separately in chronological order and presented in the index with the respective title and the exact page number in which they appeared in the text.

Example:
Figure 1: Marketing strategies (Taken from Maier, 2012, p. 13)

If figures and tables are changed or adopted, they are given the addition *"Based on ..." + source* or *"Taken from..." + source*. It follows that tables and figures which are taken from a foreign source must be included in the bibliography.

5.4 List of abbreviations and procedures

The list of abbreviations shows the abbreviations used in alphabetical order. It is sorted according to the abbreviation. Abbreviations are to be introduced only if meaningful. The term is written out for the first time and the abbreviation is placed in brackets.

Example:

"The Institute of Economics (IoE) has..." in the further course only the abbreviation can then be used.

Titles of frequently cited journals or also frequently occurring terms can be abbreviated. In addition to the generally known abbreviations (ZfbF, ZfB, DBW, BFuP), abbreviations can also be used for other journals or collective works. The list of abbreviations is placed after the list of contents, the list of figures and the list of tables.

Example:

AER	*The American Economic Review*
AR	*Accounting Review*
BB	*Betriebsberater*
BFuP	*Betriebswirtschaftliche Forschung und PraxisDBDer Betrieb*
DBw	*Die Betriebswirtschaft*
HdK	*Handbuch der Konzernrechnungslegung*
HdR	*Handbuch der Rechnungslegung HdSW Handbuch der Sozialwissenschaften*
HdW	*Handbuch der Wirtschaftswissenschaften*

5.5 Symbol directory

When using mathematical symbols, the author has the task of finding a uniform and easily understandable symbolism for their entire work. In particular, the same symbols must not take on different meanings in the course of a paper and vice versa. When symbols are used, a list of symbols must be included in the paper.

5.6 Text part

The text part is written according to the formal requirements mentioned above. A scientifically sober, simple style is to be preferred. Avoid colloquial expressions or style alien to the genre (journalistic, fiction writing). Avoid long and convoluted sentences. Avoid noun phrases as well as abbreviations, unless abbreviations are commonly used (such as etc.), or they result in considerable workload reduction and are defined (e.g., journals can be abbreviated).

"He who cannot say it simply and clearly, let him be silent and go on working until he can say it clearly." (Popper 1984, p.103)

You should consider the following requirements for writing scientific texts:

- Simplicity: Content should be presented simply and clearly. Be aware of your target audience. Avoid nesting and create short sentences.
- Structure and order: Arrange your work clearly and structure it logically. Think of the logical sequence (introduction, main part, conclusion).
- Brevity, conciseness: Write briefly and concisely and always reduce to the essentials. Only relevant information should be included in the text.
- Additional stimulus: the use of practical examples and recollection of recent results relevant to the topic is recommended. Avoid the first person form.

Central charts and tables belong in the text, the rest (e.g. questionnaires, legal texts etc.) goes in the appendix.

5.7 Appendix / list of an appendix

Presentations such as questionnaires, interviews, legal texts, company brochures, etc. should be placed in the appendix. In the text section, reference should be made to the appendix at the appropriate place. If the appendix is extensive, it is advisable to include an index for the appendix.

5.8 Bibliography

A bibliography is included at the end of each paper. This list contains, in alphabetical order, the authors of all books, articles, etc. cited for the paper, with full title, number of edition(s) used (if several editions are available), place of publication, and year of publication. First names may be abbreviated. Professional titles and academic degrees are not listed. Sources are included in the bibliography differently according to their form of publication (see Appendix 3).

5.9 List of laws and judgments

If the paper makes extensive use of laws/regulations, a separate list of laws and judgments should be inserted after the bibliography. The laws/regulations are to be arranged chronologically according to court and indicated with complete designation, reference and version used. For each judgment, the respective court, file number, date and source must be indicated.

Examples:
BFH: IV 165/595 v. 17.03.1961 (BStBl 1961 III, p. 237)

ARegV: Incentive Regulation Ordinance of October 29, 2007 (BGBI. I p. 2529), last amended by Article 4 of the Act of August 21, 2009 (BGBI I p. 2870)

HGB (2007): Handelsgesetzbuch (German Commercial Code) in the adjusted version published in the Bundesgesetzblatt (Federal Law Gazette) Part III, subdivision number 4100-1, as last amended by Article 17 of the Gesetz vom 21. December 2007 (BGB1. I p. 3089)

5.10 Statutory declaration

At the end of each scientific work, the author must declare that he/she has done the work by him/herself and without any help. It is important to insert the date and the signature.

Example: *I hereby certify that I have prepared this thesis independently and without the use of any auxiliary materials other than those indicated. All passages taken verbatim or in spirit from published and unpublished documents are identified as such. The work has not been submitted in the same form to any other audit authority.*

5.11 Blocking notice

If the scientific work contains information that should not be made available to the public, a so-called embargo note must be included as the first sheet.

6 Citation

6.1 When to cite?

Every thought that is taken over is to be quoted. A plagiarism is not only a literal quotation without quotation marks, but also a quotation in the sense, which is presented as own knowledge. Paraphrasing (replacing words with synonyms) or changing sentence positions is also plagiarism.

Conclusion: Copying is allowed... but must be quoted accurately and proper.

6.2 What to quote?

In principle, all sources that have been consulted must be cited, i.e. also reprints, unpublished works, writings that have not appeared in the book trade. But: There are a number of works that should not be cited in a scientific paper, because they are probably not accessible to the reader: e.g. grey literature (research report) or these are not worth citing: e.g. scripts, Wikipedia, general encyclopedias and company websites. A distinction is made between primary, secondary and tertiary literature.

Primary sources always take precedence. Always pay attention to the citability (source must have been ***published***, source must be ***traceable*** and the material must be ***controllable***) and worthiness of the sources (distinction between popular & professional literature, criteria are among others publisher, author, peer- review,...). Only in exceptional cases daily newspapers or general encyclopedias are considered citable.

6.3 Quality of the cited sources

For writing scientific papers, the citability and citation-worthiness of sources is important. In order to get an overview of the multitude of available sources, which publication is of high quality, there is the possibility to inform oneself in so-called journal rankings.

6.4 How to quote?

There are two ways to quote: One can quote verbatim or in sense. Failure to observe the following rules will result in the paper being graded "unsatisfactory".

6.4.1 Literal/verbatim (direct) quote

A literal quotation is characterized by the fact that the execution was taken over word-for-word from the author. Verbatim quotations should be used as rarely as necessary, only because of their special expressiveness. Direct quotations begin/end with a quotation mark ("") and are to be marked with the long or short citation style. Paragraph-long or even page-long verbatim quotations should be avoided in all cases.

Omissions are indicated by two "..." (for single words) or three dots "..." (a whole sentence or several sentences). The omission must not change the meaning of the text.

In the case of foreign-language texts, the following must be taken into account: It is possible to incorporate foreign-language quotations into the text, but this procedure impairs readability. It is therefore advisable to use a translation. However, by doing so, one gives up – strictly speaking - the literal quotation. It is best to quote foreign-language text in the sense of the text and to add the literal

quotation in a footnote so that the reader can check the correctness of the translation.

Misprints in the original source are taken over and marked by [!] or [sic!] If there are highlights in the text, these are also adopted, additions are marked with [d. Verf.] (German) or [author's note / A/N] (English). If adjustments are made for grammatical reasons, these must be placed in [square brackets].

Example
"Verbatim quote": "Change in information technology is pervasive..." (Mustermann, 2007, p. 154)

6.4.2 Quote in sense (indirect)

The purpose of an indirect quotation is to reproduce the thought, not the words (not even slightly modified formulations), of an author. Since the indirect quotation is not readily recognizable as such, I requires great care to mark it as such. For this purpose, the abbreviation "cf." is used, which precede the long or short citation. If a citation is not marked as such, the paper may be graded as "insufficient".

Example
"Meaningful quote": Already Mustermann analyzed the change of the Information technology (cf. Mustermann, 2007, p. 154).

6.4.3 Secondary quote

The secondary citation describes the procedure of quoting the original source from a secondary source. Secondary citations are generally inadmissible and only allowed in exceptions (absolutely no access to the original). If a secondary citation is not marked as such, the paper may be graded "unsatisfactory". Both works must be included in the bibliography.

Example *"secondary quotation": Already in the 17th century, Altmann referred to the special importance of the verification of information sources (cf. Altmann, 1637, p. 54 f. cited in: Neumann, 2007, p. 151).*

6.5 Citation methods

A distinction is made between the long and short citation methods, although the short citation method (especially the Harvard method) is now most commonly used.

6.5.1 Long quote

The long citation (full reference) is made in the footnote, as the entire bibliographic data is listed. Basically, the source is presented analogously to the list of sources. The use of the long citation method is not recommended. The part of the text to be cited is indicated by a footnote at the end of the citation. The numbering of the footnotes must be chronological.

Example: "Corporate culture characterizes a group and is thus a collective phenomenon.."[1]

6.5.2 Short quote

The most commonly used citation method is the short reference. This can be done either ***in the text*** or ***in the footnote***, although the most common form is in the text. It serves as a short reference to the entry in the bibliography. There are four common short citation methods:

Short quote	**Example**
Harvard citation	Mustermann 2007, p. 12
Author Keyword Year Citation	Mustermann (IT-Basics 2007), p. 12
Short citation with name abbreviation	[Must07]
Citation with numerical index	[18], p. 12

6.5.3 More hints

As soon as the author refers to an author over several pages, they have to express this. It is possible to write in the text, for example, "My remarks on pp. 45-58 reproduce an abridged thought of XY..." or to use the abbreviation "f." at the end of the citation. (the indicated and the following page, e.g. p. 2 f. = p. 2 and 3) or "ff. (the indicated and at least the two following pages p. 384 ff. = p. 384, 385, 386, ...).

In the case of several authors, the surnames are separated by "/" or ";", from four authors only the first author is mentioned with the addition "et al." e.g.: (cf. Huber et al. 2003, p.44).

Highlighting that is additionally applied by you is to be marked: [emphasis added by author]. Emphases taken from the text must be noted at the end of the quotation: [emphasis in original].

If you refer to the same author and the same work in two directly consecutive quotations, the addition "Ibidem" is used (ibid., p. 5).

If the complete work is referred to, either the addition "Passim" is used, e.g.: (cf. Mustermann, 2007, passim) or omitting the page number (cf. Mustermann, 2007).

[1] Sackmann, Sonja (2007): Unternehmenskultur: Erkennen – Entwickeln – Verändern; mit Checklisten, Fragebogen und Fallstudien, 2. corrected edition, Munich, S. 25

7 Literature management

For the technique of collecting sources and representations, library guidance (e.g., using index cards or by means of a computer program) is highly recommended. Often the work required to prepare scientific texts is underestimated. The library of the University of Applied Sciences Frankfurt am Main provides students with a free license for the literature management system "Citavi". With Citavi you manage your literature, collect citations, design texts, plan assignments and automatically create bibliographies.

8 Thought leadership

Each paper should be preceded by a problem statement. Avoid generalities in the introduction. The reader must always recognize the author's central theme; he or she should know what the author intends to say. Especially in the case of extensive works with which the author has been occupied for a long time, it is advisable to provide a reader's guide, i.e. short summaries, outlooks and reasons for the procedure. Each paper should contain a thesis-like summary of the results. Remember the classical principle "introduction - main part - conclusion":

The introduction serves to give the reader a compact impression. It briefly introduces the topic treated and justifies the choice. This is followed by a brief outline of the objective and the benefits of the work. Subsequently, an overview of the structure is given. The size of an introduction corresponds to about 10% of the total text.

The main body is the core of the work and consists of several chapters and sections. Pay attention to the red thread and to a logical argumentation. The main part makes up about 80% of the total text.

The conclusion, together with the introduction, forms the framework of the paper. This is followed by a summary, interpretation and evaluation of the results. Formulated questions are taken up again. Check whether, if necessary, further questions have arisen that can be clarified in follow-up work?

Especially in term papers, the arguments of different authors are often just strung together. This is not sufficient. It is rather necessary in every scientific paper that arguments are also structured, weighed against each other and examined according to their underlying explicit and tacit assumptions.

9 Procedure tips

Preliminary work:

- Literature research on the topic
- Definition of the most important terms
- Separation of "unimportant from important
- Formulation of epistemological questions and, if necessary, theses

Outline:

- Introduction: justification for the choice of the topic as well as the epistemological questions, introduction to the topic. In the introduction, motivate the reader for the topic.
- Main part: justification of the approach (including methodology) and any narrowing of the topic. Definition of the field of investigation, presentation of the state of research. The own position should be supported with current literature or sources (e.g. foreign experiences). Presentation of the results.
- Concluding section: summary and, if necessary, addressing open/new questions. Conclusion with a short outlook or "plea".

Content:

- Logical reasoning
- Formulate text in a problem-oriented way, not just descriptively
- Own contribution especially in theoretical work by own statement
- Objective reasons, non-judgmental argumentation: Only at the end your own opinion is presented!
- Definition of important term

10 Further literature and references

Below you will find some useful tips and literature from members of Department 3 on the topic of "Scientific Work". Please keep in mind that the priority for the writing and the form of the scientific paper is given by the respective supervisor.

Jankowski, R. (2013): Requirements for scientific work. URL: https://www.jankowski-multimedia.de/fh/klaus/form1.htm, as of 27.01.2014.

Rieck, C. (n.d.): Home, bachelor and master theses. URL: http://user.fhfrankfurt.de/~crieck/0000960b0ea9d12/index.html, as of 27.01.2014.

Schimmel, R. (2014): Juristische Klausuren und Hausarbeiten richtig formulieren, 11th edition, Carl Heymanns Verlag, Cologne.

Wiltinger, A./ Wiltinger, K. (2013): Wissenschaftliches Arbeiten, ein Praxisleitfaden für Studierende, 2. Edition, Cuvillier Verlag, Göttingen.

List of sources

Balzert, H. et al. (2008): Wissenschaftliches Arbeiten – Wissenschaft, Quellen, Artefakte, Organisation, Präsentation, W3L-Verlag, Witten.

Boeglin, M. (2007): Wissenschaftlich arbeiten Schritt für Schritt – Gelassen und effektiv studieren, Wilhelm Fink Verlag, München.

Ebster, C./ Stalzer, L. (2008): Wissenschaftliches Arbeiten für Wirtschafts- und Sozialwissenschaftler, 2. Auflage, Facultas Verlags- und Buchhandels AG, Wien.

Dahinden, U./ Sturzenegger, S./ Neuroni, A. C. (2006): Wissenschaftliches Arbeiten in der Kommunikationswissenschaft, Haupt Verlag, Bern.

Heister, W./ Weßler-Poßberg, D. (2007): Studieren mit Erfolg: Wissenschaftliches Arbeiten, Schäffer-Poeschel Verlag, Stuttgart.

Karmasin, M./ Ribing, R. (2009): Die Gestaltung wissenschaftlicher Arbeiten, 4. Aufl., UTB-Verlag, Wien.

Rückriem, G./ Stary, J./ Franck, N. (1997): Die Technik wissenschaftlichen Arbeitens. Eine praktische Anleitung, 10., überarb. Aufl., UTB-Verlag, Paderborn.

Salmon, W. C. (1973): Logic, 2. Edition, Englewood Cliffs, Prentice-Hall Inc