

**Guideline for writing a seminar paper and bachelor/master thesis**  
**at the Chair of Statistics and Econometrics,**  
**University of Freiburg**

## **1. Structure of the paper/thesis**

The length of a seminar paper is maximum 25 pages (without appendix) if written jointly by two students and maximum 15 pages (without appendix) if written by only one student. For the maximum number of pages of a bachelor or a master thesis, please consult the information provided by the examination office.

The formal structure of the paper/thesis should meet the following scheme:

1. Title page
2. Table of contents
3. List of figures (when applicable)
4. List of tables (when applicable)
5. List of abbreviations
6. Text
7. Bibliography
8. Appendix (when applicable)
9. Declaration of independent work according to the official examination rules

### **1.1 Title page**

For a seminar paper, the title appears centred in the upper part of the title page, beneath appears the text ‘Seminar paper for the Seminar [*here title of the seminar*]’, the name of the university, the name of the lecturer and the term in which the paper is written. In the lower part of the page the name(s) of the author(s) should appear, together with their complete address(es) and their matriculation number(s) as well as the place and date of completion of the seminar paper.

For placing the title on the first page of the bachelor/master thesis, please see the official indications of the examination office.

### **1.2 Table of contents**

The table of contents contains the outline of the paper/thesis with page numbers. The outline is composed by the headings/names of the chapters/sections of the paper/thesis. The structure of the outline should be logically comprehensible and non-overlapping.

The names of the sections whose contents have equal priority should be placed at the same level of structure, which is not to say that the length of the sections must be the same. The headings/names should indicate the aspects mentioned in the related (sub)section and they should be short. If one chooses in a section to have subsections, then the section should have at least two subsections. It is not recommendable to divide the paper into too many subsections; one page per subsection should be the

minimum. Within the scope of a paper/thesis, at most two levels of structure are appropriate (i.e., sections and subsections).

Formally, the division of the table of contents should follow the Dewey decimal classification or the mixed alphanumeric classification.

### **1.3 List of figures**

If the paper contains several figures, it is recommendable to make a list of them, which should be placed after the table of contents. In this list, all figures are enumerated with their heading, number and page number.

### **1.4 List of tables**

If the paper contains several tables, it is recommendable to make a list of them, which should be placed after the table of contents. In this list, all tables are enumerated with their heading, number and page number.

### **1.5 List of abbreviations**

The abbreviations that are used in the paper are to be listed and explained in the list of abbreviations in alphabetical order, which should be placed after the table of contents. The use of abbreviations should be constrained to general linguistic usage and common abbreviations in the specific field.

### **1.6 Text**

The text is the **core** of the paper. In this part, the author deals with her/his topic in an explicit way. One should strive for a precise scientific formulation. The general structure of the text is:

- I. Introduction*
- II. Methodology*
- III. Empirical results*
- IV. Conclusion*

- I. *Introduction*: In this section, one introduces and motivates the topic of the paper/thesis, integrates it in the literature by pointing out the own contribution, and surveys the literature on the topic. The last paragraph should provide a short description of each of the sections that follow (in general one sentence for each section).
- II. *Methodology*: In this section, in general one presents the econometric methodological framework used in the thesis. The methodology should be presented **not by copying and pasting** the formulas from literature sources, but by writing them in the way the **author(s) understand(s)** it. A very special attention should be paid to the mathematical notations and symbols, which should be consistent throughout the paper/thesis. The author(s) should put effort in interpreting with own words the choice and meaning of the methodologies as well as their advantages and disadvantages.

In general, the description in this section should be kept at the **minimum of necessary concepts** that are directly used in the paper/thesis, but enough to understand the meaning and the results of the paper/thesis.

- III. *Empirical results*: In this section, one provides first the description of the real data used in the paper/thesis. If the paper/thesis presents Monte Carlo simulation results, a special subsection should provide the description of the simulation designs.

The section continues by presenting the empirical results from applying the econometric methodologies from the previous section to the real and/or simulated data. It is very important that the results are not only presented in tables and figures, but discussed at length and interpreted.

The tables/figures with the most relevant results for the discussion are included in this section, the rest should be directed to the appendix. In the main text, one should avoid the presentation of tables and figures on multiple consecutive pages.

The author(s) should discuss the results in the context of the existing results in the literature. It is not accepted that estimation results are presented without providing information about their uncertainty, such as standard errors, t-tests or p-values. Moreover, if comparisons between empirical results occur, they should be done based on statistical tests. The empirical results should also include results on various empirical robustness checks.

- IV. *Conclusions*: In this section, one sums up the findings of the paper/thesis, by shortly introducing the topic and summarizing the empirical results. This section should also include a description of the limitations of the paper/thesis and indications on possible ways of researching the topic in the future.

In all parts of the text of the paper/thesis, very special attention should be paid to correctly citing and naming the references: Parts of the texts, ideas and ways of description that are adopted from various literature resources need to be explained clearly and the original sources need to be cited accordingly.

## **1.7 Bibliography**

The bibliography lists all references cited in the paper/thesis in alphabetical order according to the author's surname. If one author is cited several times, her/his publications are put in chronological order. The publications of the same author with the same year of issue are listed alphabetically according to their title.

## **1.8 Appendix**

The appendix covers background information that cannot be integrated easily into the main text of the thesis for lack of space (own mathematical proofs – if applicable, tables, figures, diagrams). This information should be structured on type, like the appendix should include various sections, each of them for various information: i.e., for the proofs, for the tables, for the figures, etc. The headings of the sections within the appendix are numbered with letters, like A., B., C., ...

### **1.9 Declaration of independent work according to the official examination rules for bachelor and master theses**

The paper ends with the following declaration: "I hereby declare that I have written this paper without any unauthorized help and without using any other means than those indicated. All passages that are taken verbatim or in spirit from publications have been marked as such. The submitted bachelor/master thesis was neither completely nor in essential parts subject of another examination. The electronic version of the submitted bachelor/master thesis is consistent in content and formatting with the printed paper copies."

## **2. Technical Details**

### **2.1. Layout**

For the text, the font size 12 should be chosen and the footnotes should be written in font size 10. The line-spacing of 1.5 is recommended. The left margin should measure 6 cm, the upper, right and bottom margins should measure maximum 3 cm.

### **2.2. Footnotes and quotations**

In scientific papers, footnotes represent the most frequently used form of notes. They serve as a reference to information that would disrupt the text's coherence if placed directly, such as references to supplementary literature, references to other parts of one own's manuscript and deviations from the main line of arguing.

For reasons of readability, it is recommended to employ footnotes only for documentation of sources, do not use footnotes for long explanations of marginal problems. The spot of reference in the text should be marked by a superscript Arabic numeral. The text of the footnote should be placed on the bottom of the same page. The footnotes are to be numbered consecutively.

The references in the text contain the author's last name, year of publication and, if necessary, the page number/section referenced. Several authors of one source are connected by 'and' or '&'. If more than three authors are mentioned, only the first one is given with the addition 'et al.'

Examples: Friedman (1983)  
Friedman and Clark (1986)  
Friedman & Clark (1986)  
Friedman et al. (1988)

In case of verbatim quotation, i.e., the quote is taken from the source word by word, the quote appears in inverted comma. The intentional omission of one word is denoted by two dots, the omission of several words is shown by a triple-dot. Deviations from the original source have to be marked clearly. The reference to the source is located directly behind the quote. It contains the author's last name, year of publication and the page number (where the quote can be found) in parentheses.

Example: (Friedman, 1983, p.154)

### 2.3. Formulas

Symbols used in mathematical formulas are defined clearly at their first appearance in the text. A consistent notation of formulas enhances readability. To enable cross references between distinct formulas, they should be numbered. The numbering should appear consistently on either the left or right side of the text. Formulas should be positioned centre justified and offset from the text by blank lines.

### 3. The Bibliography List

*Monographs or books* are listed by giving in the last name and the first name of the author, the year of issue, the title, the possible name of the series, the volume, the edition (if it's not the first one) and the place of issue.

Example: Koenker, Robert (2005). *Quantile Regression*, Cambridge University Press, United States.

*Papers/articles in a collected volume* are listed by giving in the last name and the first name of the author, the year of issue, the title of the article, *in:* the first and the last name of the editor, the title of the book, the possible name of the series, the volume, the edition (if it's not the first one), the place of issue and the pages covered.

Example: Chib, Siddhartha (2001). 'Markov Chain Monte Carlo Methods: Computation and Inference', *in:* J. Heckman and E. Leamer (eds.): *Handbook of Econometrics*, Volume 5, Amsterdam: Elsevier Science, 335 – 356.

*Articles published in journals* are labelled with the first and the last name of the author(s), the year of issue, the title of the article, the journal, the volume, the number of the issue (in parentheses) and the page references.

Example: Stock, James (1988). 'Estimating Continuous Time Processes Subject to Time Deformation', *Journal of the American Statistical Association* 83(401), 77 – 85.

If more authors, all need to be mentioned in the bibliography.

Examples: Tauchen, G. E. and Pitts, M. (1983). 'The Price Variability – Volume Relationship on Speculative Markets', *Econometrica* 51(2), 485 – 505.

Patton, A. J., Ziegel, J. F. and Chen, R. (2019). 'Dynamic Semiparametric Models for Expected Shortfall (and Value-at-Risk)', *Journal of Econometrics* 211(2), 388 – 413.

References to internet pages are only acceptable in exceptional cases, when their use is inevitable (an exception to this rule are regular online publications with digital identification DOI). Utterly unspecific internet references to the homepage of a department, professorship or else are strictly forbidden. One should preferably include published works in the bibliography and avoid unpublished sources. Do not quote Wikipedia!!

#### 4. Yet another good advice

If you are doubtful or insecure about some formalities, it is advisable to have a look at current papers in the field of econometrics and statistics (e.g. as published in leading journals) and follow these references.

#### 5. Information on literature research

Start your literature research on certain topics preferably with survey articles in renowned handbooks, appropriate textbooks, or articles in leading international journals that have appeared **recently**. In general, it is easy to find earlier published literature on the topic by means of these works' bibliographies.

As starting point for literature research, you should consider Google Scholar, but also other databases, such as ResearchGate, arXiv.org, SSRN, EconPapers or EconLit.

#### 6. Data and programming codes

Please provide with your thesis/paper the data and the codes you used in your work on a USB or by email to [ls.statistics@vwl.uni-freiburg.de](mailto:ls.statistics@vwl.uni-freiburg.de). The data and the codes should be comprised in a folder with the name containing your name(s) and the reference if it is a thesis or a seminar paper, as well as the semester of submitting:

Examples of **names** of the folder: Becker\_MasterThesis\_WS2021

Becker&Mueller\_SeminarPaper\_WS2021

Please communicate with the supervisor(s) when accessing the data for your study. In the financial econometrics area, you should avoid using data from Yahoo Finance or any other free-of-charge sources as the data is not reliable. Our chair can provide you with high-frequency financial data for stocks and exchange rates as well as with the access to the data platform EIKON, which provides data at daily or lower frequencies on foreign exchanges, equities, commodities, funds, etc. For other types of data, please check with the supervisor the source and reliability before using it in the empirical study.

If you use integrated codes (libraries) or codes written by other sources, it is compulsory that you mention it in your thesis together with their sources.