

Ludwig-Maximilians-Universität München
Munich School of Management
Institute of Electronic Commerce and Digital Markets

GUIDE TO WRITING SCIENTIFIC PAPERS
(BACHELOR- AND MASTER THESES, SEMINAR PAPERS)

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1 Time management

Time management is the key to the success of your paper. Therefore, it is recommended to create a work schedule early on.

You should have a clear understanding about the goal of your paper.

Do not defer the process of writing your paper for too long. You don't realize that things are still unclear until you have to formally write them down. This should however not lead to you writing about something, just to have some words on the paper, even though you do not know what you are writing about yet.

Computer problems (crashes, destroyed hard drives, etc.) are not accepted as a reason for an extension. Take appropriate safety precautions (data backup, etc.)!

2 Literature search and analysis

2.1 Introductory literature

Read the literature recommended by the supervisor and the cross-references contained therein. They are intended to facilitate entry into the subject.

They are not necessarily the most important papers for your topic but should give you a good overview. As with all other papers, you may also critically review them.

2.2 Literature search

Note that not all of the following search strategies are equally relevant for each topic.

- Review recent issues or years of important journals with respect to your topic, with consideration of their Jourqual Ranking Score (<https://vhbonline.org/vhb4you/jourqual/vhb-jourqual-3/gesamtliste/>).
- Well-established marketing journals are for instance: Journal of Marketing, Journal of Consumer Research, Journal of Marketing Research, Marketing Science, Journal of the Academy of Marketing Science, International Journal of Research in Marketing, Journal of Product Innovation Management, Journal of Service Research.

- Well established journals in the field of Information Systems are for instance: Information System Research (ISR), Mathematical Programming, MIS Quarterly, International Conference of Information Systems (ICIS), Journal of Management Information Systems (JMIS), Information Systems Journal (ISJ), Journal of the Association for Information Systems (JAIS), International Journal of Electronic Commerce (IJEC), Wirtschaftsinformatik / Business Information Systems Engineering.
- Examine cross-references! Hint: search for the latest articles first. The important, high impact papers will be quoted therein.
- Search databases, e. g., EBSCO, Google Scholar, JSTOR, Science Direct, WorldCat, EconLit, WISO, AISEL, with regard to important keywords relevant to your topic. The websites of the university library provide extensive support: <http://www.ub.uni-muenchen.de/>
- Search for newer textbooks related to your topic.

Important rule: First evaluate the relevance of an article (e. g., based on abstract, introduction, figures, and tables) – then start reading.

Early preparation of your paper's outline supports the goal-orientation of your literature search. Moreover, it helps you focus on articles that are truly relevant to your topic. In addition, it will help you notice for which parts of your outline you are still missing literature.

2.3 Literature analysis

Basic rule: Trust no one! Don't take all sources at face value, but evaluate them critically. Articles in academic journals, which have undergone a double-blind review process, may be considered to be of higher quality. Nevertheless, everything has to be questioned!

Read all sources in their original version.

Secondary citations are permitted only exceptionally (e. g., when a source is not available in the University library, but very important). Especially unpublished work (e. g., working papers) should only be cited if you have really read it.

Dictionaries (whether as a book or online) should not be used; always search for the primary source.

Whether you cite directly or indirectly, always provide sources and mark them as such. Proper citation style is a sign of scientific integrity. If in doubt, rather quote too much than too little.

Important: Always double-check if – when taken out of context – a citation may lead to an ambiguous or distorted meaning.

3 Presentation of content

The exact presentation of the content of your paper primarily depends on your topic. Nevertheless, you may consider the following general guideline.

3.1 Outline

The outline should be well-balanced. The length of a segment should roughly reflect the importance of the discussed aspect for the overall paper.

Sections that are on the same level in the outline should also thematically be on the same level, and should assume a common, overarching research problem.

Each subsection should be related to the superordinate section. Together, all subsections should fully cover all aspects of the superordinate section. Moreover, subsections should be mutually exclusive (with no overlaps).

Please use short but precise and meaningful section (and subsection) titles.

The outline should not be too detailed. Usually, it becomes confusing with more than three outline levels. For seminar papers, we recommend not more than two outline levels.

If a new outline level is introduced, it must consist of at least two sub-chapters. Example: if there is 3.1.1, there has to be 3.1.2.

3.2 Introduction

The introduction should answer the following questions:

- What is the problem? (Narrow down the topic!)
- Why is it important? (Relevance)
- Why is it not trivial? (Challenging problem)
- What do you want to contribute to solve the problem? (Contribution)

Do not motivate the paper with some historical developments.

The introduction should not anticipate the results of your paper.

Before you start working on your paper, write down the research problem and goal of your paper. Once you start working on the paper, ask yourself at each section, whether it contributes to the problem and goal defined at the beginning to avoid irrelevant text.

3.3 Definitions and foundations

Definitions should be chosen in line with the goal and context of your paper.

If available, use widely used and accepted definitions. Definitions should clarify what the focus of your paper is. It usually does not add value to list or discuss the different definitions employed in the literature.

Tip: In the end, double-check if you adhere to the chosen definition throughout the paper.

3.4 Summary

The summary (last chapter of the paper) should relate to the problem and goal of the paper. In the summary, the reader expects answers to the question(s) asked in the introduction. In other words: in the summary, it must become clear what the reader has learned throughout the paper.

Do not provide philosophical outlooks or speculative predictions for the future. Additionally, while formulating the summary you should again check which parts of the paper are really relevant, i. e., which sections contribute to the results described in the summary?

3.5 Approach for writing theoretical papers

To outline several theories, models, methods or empirical studies, it is usually helpful to start by classifying or standardizing them. Do not simply enumerate studies or models.

A classification should give an overview of the available/established theories, methods, models, or studies. If you select only a subset of theories, methods, etc., comment your selection or refer to the remaining ones in a footnote. Your decision to select the specific subset should be transparent!

If you want to assess different theories, models, methods, or studies, it is helpful to develop assessment criteria in advance. The assessment should then be based on these – and only these – criteria. You might also want to use tables and graphs to illustrate your criteria and assessment.

When there are many empirical studies, it is not helpful to present each study in detail. Instead, you should give an overview of the studies and discuss their results, differences etc. It is important to compare the studies and highlight how their results align or contradict with each other. Tables are a useful tool for that!

If findings of different empirical studies contradict each other, you should explain how these differences can be explained.

For instance, consider the research methodology that was used in the respective studies. Try to not critically review the methodology per se, but analyze to what extent the studies differ in their methodologies and if these differences could explain contradictory results.

Statements have to be as precise as possible. Do not just speak of “relevant” data, studies, sources, or influencing factors and never vaguely mention “the studies”. Always provide sources and labeled them as such, so that anyone can identify and verify them.

If you make judgments, they need to be justified. Always separate personal value judgments from factual claims. Don’t be discouraged from forming your own judgements – but please justify them!

3.6 Miscellaneous

Use illustrations, i. e., tables and figures whenever possible. They can – if used appropriately – help you structure your paper and arguments. When writing your paper, you can simply follow the logic of your illustration. Additionally, they help readers follow and understand your arguments.

Do not use digressions. Whereas textbooks often contain digressions, in scientific papers they create the impression that the discussed aspect could not be integrated into the outline. If an aspect does not fit into the outline, the outline is probably unsuitable or the aspect is so unimportant that you can forgo it.

The appendix should only contain additional information that is not necessary to understand the text. Please note that text should not be shifted from the main text to the appendix due to lack of space. The appendix may only contain additional information that are necessary for the comprehension of the text.

4 Formal requirements

4.1 Size and page layout

The maximum number of pages (one page typically corresponds to 2,300 characters):

- Seminar thesis: 15 pages
(Exception: when working in groups of two students: 25 pages)
- Bachelor thesis: 30 pages
- Master thesis: 50 pages

This includes figures and tables in the text, but not title page, outline, lists, and appendices.

4.2 Formatting

Page numbers:

- The outline and lists (e. g., list of figures and tables) are numbered with roman numerals and start with -II-. The cover page is the first page; however, no page number is indicated there.
- The main part as well as appendices and list of reference are numbered with Arabic numerals starting with 1.

- The Declaration of Originality does not have a page number.
- All page numbers should be positioned at the upper right part of the page.

Further formatting requirements:

- Font: Times New Roman
- Font size: 12 point
- Line spacing: 1 ½-line; after every paragraph 12 point spacing
- Margin: left 4 cm; right 2 cm; top 2,5 cm; bottom 2,5 cm
- Layout: justified, hyphenation
- Footnotes can be single line and in font size 10 point.

4.3 Cover page

You will find a template for the design of the cover page in a separate document.

4.4 Indices

If possible, use the index function of your word processing program to create the table of contents. Headlines and page numbers in the text must match the table of contents. The same applies to the labels of tables and figures.

If the paper contains at least *one* table or figure, please use a list of tables or figures.

The sequence of the different parts of your paper:

- Title Page
- Table of Contents
- List of Figures (where necessary)
- List of Tables (where necessary)
- List of Abbreviations (where necessary)
- List of Symbols (where necessary)
- Text
- Appendix (where necessary)
- Reference List
- Statement of Originality

Please consider the separate document for examples of indices, figures, and tables.

4.5 References

References to sources should be made as short reference in the footnotes or as in-text citations. Please consult your supervisor which references style to use. Important: Adhere to one consistent style throughout your paper.

Journal articles

If the source you are referring to is written by more than two authors, the short reference contains just the lead author and the specification “et al.” (et alii = lat. for “and others”) is stated. However all authors must be listed in the reference list.

If you refer to more than one page in a source, you add an “f.” behind the first page if you are referring to two pages. If you refer to more than two pages, please indicate the range of page numbers, e. g., pp. 1-5.

If you refer to an article as a whole, there is no need to mention page numbers.

Footnote: Cf. author(s) (year), page reference. First names or academic degree are not included in the citation. There is a full stop at the end. Examples for footnote citation:

- One author: Cf. Reichhart (2014), p. 651f.
- Two authors: Cf. Baum und Spann (2014), p. 140.
- More than two authors: Cf. Spann et al. (2018), p. 125.

If several sources are used for one statement, only one footnote is made. In other words: more than one source can be stated in a footnote (divide them with a semicolon). Example:

- Cf. Reichhart (2014), p. 651f.; Baum und Spann (2014), p. 140.

If multiple, consecutive footnotes refer to the same reference, one can use the abbreviation “ibid.” (ibidem = lat. for “in the same place”) instead of renaming the reference.

- Ibid. p. 651f.

In-text: (Author(s), year, page reference)

- One author: (Reichhart, 2014, p. 651f.)
- Two authors: (Baum und Spann, 2014, p. 140)
- More than two authors: (Spann et al., 2018, p. 125)

Occasionally, you will find working paper versions of an article online (especially when searching with Google Scholar). In such cases, please always search for the published version of the article and cite the page numbers of the published version.

Books, conference proceedings and working papers are cited similarly to journal articles.

Websites

Websites are also quoted in a short reference form (if available with author and year).

Example for footnote citation:

- Cf. Roberts und Naydenova (2019).

References of tables and figures

The source of a table or figure is provided directly underneath the table/figure. If tables/figures have been modified compared to the original, this is mentioned with the words “based on”. Example:

- Table 1: Title of table 1
Source: based on Reichhart (2014), p. 651.

4.6 Quotations

Generally, please refrain from using direct quotes. They should only be used for definitions or when an author has provided a very distinct way of formulating a topic.

Direct quotes are put in quotation marks. In the reference the “cf.” is dropped.

Direct quotes must be cited in their original wording! Possible omissions must be indicated by consecutive dots “[...]”. Even possible spelling errors must be repeated. They can be marked with “[sic!]” to illustrate that the error already existed in the original version.

4.7 List of reference

The list of reference should be aligned to the left.

The sources are listed in alphabetical order of the authors' last names. It is usually sufficient to use initials of the first name. Academic degrees and the like are not stated in the list of reference.

Multiple sources of the same author(s) are listed chronologically. The oldest publication is named first. Single authors are listed before teams of authors.

If there is more than one publication of the same author and the same year, put the letters a, b, c after the year of publication to distinguish the sources. Example:

- Cf. Spann and Skiera (2003a), p. 1315 and cf. Spann and Skiera (2003b), p. 23.

Reference management software, such as *Citavi* or *Endnote*, simplifies the management of source and ensures a consistent formatting. We recommend using the included reference style *Management Science*. Alternatively, you may use the ECM-style (<https://www.ecm.bwl.uni-muenchen.de/service/downloads/index.html>). The LMU library provides a campus license and training offers (<http://www.ub.uni-muenchen.de>).

Make sure the list of references includes every source cited in the text but no additional ones! Sources that have been read, but have not been used directly, must not be listed.

Journal article: Name(s), First Name(s) (date of publication): Title, in: Journal name volume (issue), page numbers (from-to). Examples:

- Baum, Daniela; Spann, Martin (2014): The Interplay between Online Consumer Reviews and Recommender Systems: An Experimental Analysis, in: International Journal of Electronic Commerce 19(1), 129-162.
- Reichhart, Philipp (2014): Identifying Factors Influencing the Customers Purchase Behaviour due to Location-Based Promotions, in: International Journal of Mobile Communications 12(6), 642-660.
- Skiera, Bernd; Hinz, Oliver; Spann, Martin (2015). Social media and academic performance: Does the intensity of Facebook activity relate to good grades?, in: Schmalenbach Business Review 67(1), 54-72.

- Spann, Martin; Skiera, Bernd (2003a): Internet-Based Virtual Stock Markets for Business Forecasting, in: Management Science 49(10), 1310-1326.
- Spann, Martin; Skiera, Bernd (2003b): Taking Stock of Virtual Markets. How can Internet-Based Virtual Stock Markets be Applied for Business Forecasting and Other Forecasting Issues?, in: OR/MS Today 30(5), 20-24.
- Spann, Martin; Zeithammer, Robert; Bertini, Marco; Haruvy, Ernan; Jap, Sandy D.; Koenigsberg, Oded; Mak, Vincent; Popkowski Leszczyc, Peter; Skiera, Bernd; Thomas, Manoj (2018): Beyond Posted Prices: The Past, Present, and Future of Participative Pricing Mechanisms, in: Customer Needs and Solutions 5(1–2), 121-136.

Monographs: Name(s), first name(s) (date of publication): title, edition, publisher, place(s) of publication. *Please note*: The edition is only mentioned starting at the second edition. Example:

- Laudon, Kenneth C.; Traver, Carol G. (2015): E-Commerce 2015: Business. Technology. Society., 11th ed., Pearson, Essex, UK.

Articles in edited volumes: Name(s), first name(s) (date of publication): title, in: Name(s) of the editor(s) (ed(s).): Title, publisher, place(s) of publication, page numbers. Example:

- Dommick, Dominik; Reichhart, Philipp (2017): Payback – Der heilige Gral oder wie Smartphones den Handel revolutionieren, in: Hierl, L. (ed.): Mobile Payment: Grundlagen – Strategien – Praxis, Springer Gabler Verlag, Wiesbaden, 267-281.

Web pages: Author/Publisher/Provider (year): Title, URL, date of access.

Please provide the exact URL, e. g., <https://www.pwc.de/de/private-equity/private-equity-trend-report.html> instead of <https://www.pwc.de>.

In addition, please provide the date on which the information cited was found on the cited website. Articles on webpages usually have a title, a date of publication and authors or publishers (possibly the company itself). Example:

- Roberts, Steve; Naydenova, Elena (2019): Private Equity Trend Report 2019: Powering through Uncertainty, <https://www.pwc.de/de/private-equity/private-equity-trend-report.html>, Accessed on 13.06.2019.

Working papers: Very recent research is often represented in not-yet published articles (i. e., working papers). They should be treated similarly to internet-sources, as they are often published in special online databases, e. g., Social Science Research Network <http://www.ssrn.com/>. Example:

- Molitor, Dominik; Reichhart, Philipp; Spann, Martin; Ghose, Anindya (2019): Measuring the Effectiveness of Location-Based Advertising: A Randomized Field Experiment: SSRN Working Paper, <https://ssrn.com/abstract=2645281>, Accessed on 13.06.2019.

Conference proceedings: In addition, recent research is often published in conference proceedings. Please cite them similarly to edited volumes. Example:

- Molitor, Dominik; Spann, Martin; Reichhart, Philipp; Ghose, Anindya (2018): Measuring The Effectiveness of Location-Based Mobile Push vs. Pull Targeting, in: Proceedings of the 2018 International Conference on Information Systems (ICIS), San Francisco.

4.8 Tables and figures

Figures and tables must be numbered consecutively, labelled, and annotated.

Moreover, the text should refer to the tables and figures.

Please provide sources for tables and figures, see section 4.5.

Do not paste tables and figures as screenshots taken from the source. Instead, create them yourself (especially tables and usually also figures).

Ensure that tables/figures are large enough (font size!) to read them easily.

4.9 Language

Please avoid grammar, spelling, and punctuation mistakes. They leave a bad overall impression.

Make sure to check for double spaces at the end (use “search and replace” in your word processing program).

Please write objectively and use scientific language. A scientific paper is not a newspaper article. Where appropriate, use technical terms and a simple and understandable language.

Moreover, terms should be used consistently as possible. For instance, an “attribute” remains, once designated as such, an “attribute” and is not once denoted as an “attribute”, then as a “feature”, and then as a “variable”.

Please attempt to employ a gender-neutral language and linguistic equal treatment of men and women.

Abbreviations should be avoided. Topic-specific, established abbreviations may be used, but have to be explained when used for the first time. For instance, you may use abbreviations for frequently used, longer terms throughout your paper, e. g. HRM for „Human Resource Management“. All abbreviations have to occur in the list of abbreviations (except for common expressions such as “etc.”, “e. g.”, and “i. e.”)

Please note that there should be a non-breaking space between a number and a unit symbol, e. g., 100 % instead of 100%, 42 € instead of 42€ and 12 km instead of 12km). Likewise, a space should appear in abbreviations, which stand for multiple words, for example “e. g.” or “i. e.”).

The non-breaking space (in Microsoft Word: <Ctrl> + <Shift> + <Space>) ensures that at this point no line break will occur.

4.10 Models, formulas, symbols

Models usually consist of function, some condition, and variables or parameters. Please mark the components of your model clearly. Furthermore, indicate which variables are the decision variables.

Number all equations in your paper. If you use indices, make clear for which quantity the indices of your equation stand for.

Algorithms can be used to solve models, meaning the allegedly optimal value of the decision variable is determined. Occasionally, one should consider separating the depiction of the algorithm with that of the models.

If symbols are used in formulas, a list of symbols is needed at the beginning of the paper, i. e., list of symbols (see section 4.4.). This does not replace the explanation of the symbol in the text when the symbol is used for the first time. Example (Skiera et al., 2015, p. 61):

(1) *AcademicPerformance_i*

$$\begin{aligned} &= \beta_0 + \beta_1 * FBUseInGeneral_i + \beta_2 * FBUseDuringClass_i \\ &+ \beta_3 * Clustering_i + \beta_4 * Degree_i + \beta_5 * HSGPA_i + \beta_6 * Gender \\ &+ \beta_7 * Semester_i + \beta_8 * Age_i + \beta_9 * PartTimeJob_i + \beta_{10} * Effort \\ &+ \beta_{11} * UseFBforUniversity_i + \beta_{12} * AdoptionTime_i + \varepsilon_i \end{aligned}$$

where:

AcademicPerformance: academic performance

FBUseInGeneral: use of Facebook in general

FBUseDuringClass: use of Facebook during classes

Clustering: clustering coefficient

Degree: degree centrality

HSGPA: high school grade point average (or Abiturnote in German)

Gender: one for females, zero for males

Semester: semester

Age: age

PartTimeJob: students' part-time job

Effort: academic effort

UseFBforUniversity: whether students use Facebook to stay in contact with fellow students

AdoptionTime: the time at which the student started using Facebook

Index *i*: respective student

4.11 Statement of originality

On the last page of your paper, a statement of originality must be submitted (see separate document on our website (<https://www.ecm.bwl.uni-muenchen.de/service/downloads/index.html>)).

With this statement of originality, you declare that you wrote the paper yourself, provided the required sources, and that the paper has not yet been published or submitted with another institution.

All submitted copies of your paper have to be signed personally (no print of a digital signature allowed).

5 Handing in your paper

Bachelor / Master thesis

Two printed copies of your paper (bound with a solid adhesive binding) have to be submitted before the official deadline at the ISC (Ludwigstraße 28, room 023, check their opening times!). An electronic version of your paper can be uploaded and sent through a Web form to the ISC (http://www.isc.uni-muenchen.de/abgabe_abschlussarbeiten/index.html). Maximum file size is 10 MB! For file sizes >10 MB, please submit the electronic version on a volume (CD, DVD, or memory stick) together with the printed copies at the ISC.

Seminar thesis

Please hand in *one* printed copy (simple spiral binding is sufficient) at the secretariat of the institute (Ludwigstraße 28, room 204). Additionally, please send an electronic version of your paper to the administration office (sekretariat.spann@bwl.lmu.de).

Please note that, for the purpose of plagiarism-detection, all submitted papers may be passed on in electronic format to external services and stored on external servers.

6 Consultation by your supervisor

The consultation by your supervisor is a service offering. You are free to use it or not. If you decide to consult your supervisor for advice or feedback, please do so early, e. g., to discuss the draft of your outline (cf. section 3.1). Moreover, please prepare your questions and possibly send them to your supervisor before the meeting.

We will advise you as good as we can with the goal of improving your paper. However, nothing will be “approved”. The decision on the design and contents of your paper is up to you.

Once you start working on your paper, you will become the expert on the specific topic and more often, will be much more knowledgeable about the topic than your supervisor.

Your supervisor will only be able to judge the paper after the submission.

7 Further guidelines on how to write scientific papers

Bänsch, A./Alewell, D. (2013): Wissenschaftliches Arbeiten, 11. Auflage, Oldenbourg, München.

Brink, A. (2013): Anfertigung wissenschaftlicher Arbeiten – Ein prozessorientierter Leitfaden zur Erstellung von Bachelor-, Master- und Diplomarbeiten, 5. Auflage, Springer Gabler, Wiesbaden.

Deutsche Forschungsgemeinschaft (2013): Sicherung guter wissenschaftlicher Praxis, Denkschrift, Empfehlungen der Kommission „Selbstkontrolle in der Wissenschaft“, https://www.dfg.de/download/pdf/dfg_im_profil/reden_stellungnahmen/download/empfehlung_wiss_praxis_1310.pdf, Accessed on 17.06.2019.

Hilliger, Sabine (2009): Leitfaden für die sprachliche Gleichbehandlung von Frauen und Männern in der Amts- und Rechtssprache, <https://www.regierung-mv.de/serviceassistent/download?id=1569208>, Accessed on 17.06.2019.

Simonsohn, Uri (2015): [34] My Links Will Outlive You, <http://datacolada.org/34>, Accessed on 17.06.2019.

Theisen, M. R. (2011): Wissenschaftliches Arbeiten Technik - Methodik - Form, 15. Auflage, Vahlen, München.