

Tips for writing and presenting scientific papers

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1 Topic, scope, and goal of the research paper

Writing a dissertation and presenting your research can be a difficult task. The best advice is to learn from good examples in top-rated journals (you will have to read these articles as scientific sources anyway) and also from not so good examples (although those are seldom published). Regarding presentations, you will most likely have attended presentations which you enjoyed and some which you found boring. Try to emulate the presentations which you found interesting. Likewise, use interesting and well written papers as a guide on how to structure and write your own piece of research.

It might sound trivial but your paper has one - and only one - **topic**. This topic has been agreed with your supervisor or has been predetermined. Be sure to stick to your topic even if you would prefer writing about a completely different issue.

First of all, it is important to understand what your topic is about. Why is this an interesting topic? What is exciting and important about it? What has already been written about your topic? Which questions do you want to answer? What is the objective of your paper? The answers to these questions form the framework of the introduction of your thesis as well as of your presentation. Your topic is the central theme of your work. Every paragraph and every sentence has to be relevant for the topic. If this is not the case, you should drop the respective paragraph or sentence.

Focus your explanations on the central ideas and illustrate these ideas in a simple and intelligible way. It is important that the reader or the audience can understand what you are saying without previous knowledge about your topic. Take the example of a seminar. Seminar participants are your target audience. Write your paper and explain the ideas in a way that an average economics student is able to understand your presentation without consulting additional literature.

Use short and simple sentences instead of writing long and complicated ones. Whenever you explain something, be sure that you understand completely what you are writing about. If you don't understand the issue yourself, chances are that you will not be able to explain it in a correct and clear manner.

The piece of research should not exceed a certain **number of pages** (text without cover page and without all lists of contents, variables, literature, but including tables and appendix):

- seminar paper: 15 pages,
- bachelor thesis: 25-30 pages,
- master thesis: 50-60 pages.

On the one hand, the length restriction helps when comparing across different papers. On the other hand, it forces you to focus on the core of your topic. This is one of the key elements of your achievement. During the stage of editing, it may seem impossible to compress a reasonable treatment of your complicated topic into such a small number of pages. However, less is often more!

The **goals** of your written research piece are:

- the scientific discussion of a topic,
- the finding and the analysis of relevant scientific literature,
- the application of scientific methods acquired during your courses,
- the writing of a scientific text,
- the gaining of knowledge.

2 Preparation of the writing

2.1 Schedule

Start your work by setting yourself a schedule. The time span for completing a seminar paper is about 4 to 6 weeks, while it is 8 and 14 weeks for a bachelor and a master thesis, respectively. The following suggestions are intended to be only a rough advice. It is important not to spend too much time on the first (re)searching stage as generally you will have to search for additional literature over the course of the following stages.

General literature research	1/6 of the time
Browsing & classifying of the material, preparing an outline	1/6 of the time
Working on the topic & creating a rough draft	1/2 of the time
Writing & editing the formally correct final version	1/6 of the time

At the end, you should allow yourself enough time for the final touch. If you present your work in a seminar, you will usually write the paper before preparing the presentation. Do not underestimate the time it takes to prepare your presentation.

2.2 Literature research

You will usually obtain **introductory** literature about the topic of your paper at the assignment of the topic. This literature cites papers that could be relevant for your topic. Introductory means exactly that this literature is only an **introduction** to your topic. Finding **additional relevant** literature for your paper is an essential part of your work. Still, do not spend too much time (re)searching the literature. Instead, concentrate on the sources that cover your topic in a detailed and extensive way. Do not attempt to avoid English-language literature - almost 100% of the economics literature is nowadays written in English.

Literature research can be efficiently conducted on the internet. To access some databases you may need an IP address from the RUB. This happens automatically if your computer is located on the campus. If you prefer to work from home, you can connect to the university network via a Virtual Private Network (VPN) to obtain an IP address from RUB. Follow the instructions at [RUB's computing center](#) (unfortunately only in German).

On the websites of the [university library](#) and our [faculty library](#), you will find lots of helpful information:

1. [Katalogübersicht](#): Best starting point for research novices
2. Basic research tools:
 - for journal articles: [Web of Science](#), [Scopus](#), [Google Scholar](#)
 - for working papers: [RePEc \(Research Papers in Economics\)](#) database, which can be accessed via [IDEAS](#) or [EconPapers](#)
 - for books and monographs: RUB-OPAC, digital library search tool [DigiBib](#)
3. [Tipps & Tricks rund um das Thema Recherche](#): Quite extensive instruction for scientific literature research (esp. economics).
4. [Datenbank-Infosystem](#) with all databases accessible from RUB.
5. [Elektronische Zeitschriftenbibliothek](#): Electronic journal library.
6. [Informationskompetenz](#): Courses offered by the faculty library regarding research in online catalogues, journal databases, electronic libraries etc.

7. [Informationen zur Fernleihe](#): Information on interlibrary loans.

If you think that this long list of literature research tips is rather overwhelming, focus on the following three research tools:

1. [Google Scholar](#) is a good starting point.
2. [RePEc](#), [IDEAS](#) and [EconPapers](#) contain both links to publications and working papers which are not yet published.
3. In the [Web of Science](#) you can find all papers that cite a certain article.

2.3 Outline

Organising and structuring your topic is half the battle. After getting an overview of your topic and the literature, sort your thoughts and create an outline that reflects the logical structure of your paper. This outline is not set in stone as usually the one or other item will change while you proceed with the writing. However, a well-developed and logical structure helps you to focus on the topic over the course of the writing. You know where you are heading, thus you are able to follow the way without diversions from your topic.

You should discuss the outline with your supervisor. If you feel very confident about the structure and aim of your work you may proceed without any feedback and at your own risk. However, we highly recommend to check the outline with your supervisor. Your supervisor can assist you and give you help if questions arise. Students who discuss the outline with their supervisors usually write better papers than those students doing everything on their owns.

3 The writing of the research piece

A seminar paper, a bachelor or master thesis usually consists of the following parts:

- cover page (title of the paper, type of paper: seminar paper/thesis, date, course of study/module, name, address, student ID, phone number, semester, university, lecturer/supervisor),
- table of contents and additional lists (figures, tables, abbreviations), always including page numbers,
- introduction: scope of the work (topic, relevance, potential benefit from answering), outline of paper, goal of paper,
- state of knowledge (initial situation, foundations, literature review, existing approaches in literature, standard solution procedures),
- (possibly own approach to solution or own editing of existing solutions),
- results (assessment, critical examination; possibly description of complications over the course of the work since not only the results matter but also the process of getting there),
- classification of own approach/results into the state of knowledge, application in the real world,
- summary and conclusion,
- literature (see below),
- (possibly appendices).

Your paper can be written in German or English (please discuss this with your supervisor). Once the language is chosen, the paper should be written consistently in one language. However, if you write in German, you may still use English technical terms like “moral hazard” or “likelihood ratio” that are also used in German language economics literature.

Write in an objective, neutral and precise way. Use short sentences, specially if writing in German. This will help you to argue in a logically correct manner. Also, it help readers to follow your thoughts more easily. Although you are writing a scientific paper and you should not try to win a prize for beautiful language, avoid spelling and grammar mistakes. It is a good idea to ask a colleague or a friend to read your work to check your paper for legibility, intelligibility, and typographical errors.

In most cases, you will have to use formal mathematical models. Explain all variables, formulae, and intermediate steps so that your calculations are comprehensible without using additional sources or textbooks. Particular attention needs to be paid to the economic interpretation of the mathematical results. It is not sufficient to verbally describe a mathematical formula, but rather you need to explain the mathematical formula in an intuitive way. Explain all variables in graphics, figures and tables. Remember that mathematical formulae are only a very convenient tool to formalize economic models. At the end of the day we are not interested in the mathematical result per se, but mainly in its economic application and interpretation.

Whenever possible, try to separate the objective presentation of the results from a critical and subjective assessment of the results. The first step is the presentation of a model or of a theory, which then can be discussed and/or criticised in a second step.

4 Formal requirements

4.1 Formatting specifications

Guidelines like the one you are reading usually describe in a very detailed way how a scientific paper has to be formatted. These rules are mostly arbitrary, apart from several common sense rules like consecutive page numbering, big enough margins, clearly legible fonts, paragraph formatting, etc. However, having a consistent set of rules makes for easier reading and comparing of papers. So please follow these formatting rules:

- table of contents, figures, tables, abbreviations are numbered consecutively with Roman numbers
- Introduction, main text, Conclusion and References are numbered consecutively with Hindu-Arabic numbers. The Introduction starts with number 1 (Hindu-Arabic).
- Font: Serif font, e. g. Times New Roman, Palatino or the RUB font Scala.
- Main text: Font size 11pt, 1.5 line spacing, justified text, hyphenation.
- Headings: Font size 14pt, identical font as in the main text or appropriate sans-serif font.
- Margins: At least 2.5 cm at the upper, lower, left, and right margin of the page.
- Footnotes: Font size 9pt, single spacing, font and alignment identical as in main text. Footnotes should be numbered consecutively. In economics papers, footnotes usually appear (as the name “footnote” indicates) at the bottom of the page, not as endnotes at the end of the text.
- Bibliography: Font size 11pt, single spacing, font as in main text, left-aligned.
- Figures and tables should be numbered consecutively using Arabic numerals and be located in the main text. They should have a clear and concise caption. Ensure a good readability of all diagrams, pay special attention to an appropriate size.
- Formulae should usually be presented in a separate line and consecutively numbered for the whole paper on the margin. A conversion of an already existing equation could be displayed by adjusting the numbering (e.g. (4) and (4a) or (4) and (4')). Formulae are part of the text and should appear in the same font size and type as the main text.
- The whole paper should be printed in black ink.
- You should bind your paper in such a way that it is not possible to add or remove pages without leaving a trace.

Text editor. Of course, you may use the software of your choice for your work. You are welcome to work with WYSIWYG (“what you see is what you get”) software like Microsoft Word or [LibreOffice Writer](#). However, if your paper contains lots of mathematical formulae and especially if you aim to continue working scientifically, it may pay to invest some effort in learning to use the typesetting program [L^AT_EX](#). The learning curve might be steep at the beginning, but you are rewarded with a perfect layout and typesetting of fonts and formulae. [L^AT_EX](#) is available for all popular operating systems: Windows ([MikTeX](#)), Linux ([TeX Live](#)) and MacOS ([MacTeX](#)).

When submitting the digital version of your work, please use a hardware independent file format (i. e. PDF or Postscript, not DOC, DOCX or ODT).

4.2 Bibliography and citation style

Every thought or chain of thoughts taken from another author has to be characterized as such by a reference within the text. Missing references and incorrect quoting are deadly sins in science, as proven by prominent examples in recent years in Germany. It is therefore necessary to pay close attention to clearly mark foreign ideas when citing them. In the text, citations appear in abbreviated form, e.g. "Smith (2004) points out..." or "...elsewhere (Smith 2004, p. 104) it is mentioned...". The bibliography has to contain all the sources cited (footnotes included) in the text and solely those.

Literal citations or purely translated formulations should be used as rarely as possible and appear enclosed in quotation marks. In Economics, it is rather uncommon to directly quote an author. So if possible, try to reproduce the author's thoughts in your own words, apply it to your own topic and thereby create new thoughts.

When organizing the bibliography, you can follow the citation style of top-rated journals, which may vary slightly from journal to journal. Nevertheless, it is important to stay consistent with your chosen citation style throughout the thesis. A prevalent citation style is e.g. the [Harvard style](#). We suggest using the following citation style:

- Journal articles:

Bernheim, B. Douglas, Andrei Shleifer, and Lawrence H. Summers. (1985). "The strategic bequest motive," *Journal of Political Economy*, 93:6, pp. 1045-1076.

- Books:

Olson, Mancur. (1965). *The Logic of Collective Action*. Cambridge: Harvard University Press.

- Articles from a collected volume:

Greenwood, Michael J. (1997). "Internal migration in developed countries," in: Mark R. Rosenzweig and Oded Stark (Eds.), *Handbook of Population and Family Economics*, vol. 1B. Amsterdam: North-Holland, pp. 647-720.

- Online documents:

Bergstrom, Theodore C. (2003). "An Evolutionary View of Family Conflict and Cooperation," URL: <http://www.econ.ucsb.edu/tedb/Evolution/Claremont.pdf> [Access: Date of access].

For online sources, please remember that everybody is able to publish content on the internet. The fact that you have found something on the internet does not prove its accuracy, relevance or correctness. Do not blindly trust any online content. Basically, this is also true for printed media, although the quality control of the publisher via the refereeing process should prevent serious errors.

At the same time, the internet is a vast source of information and knowledge which you are allowed to use and cite. Since the quality of the source is not always clear, online sources need to be particularly screened for quality. Some online sources, like the Wikipedia or the website of The Economist, have quite a good reputation. With other online sources one cannot be so sure. However, you are writing a scientific piece of work. This cannot be based on the Wikipedia and articles from online newspapers. Such sources can complement and illustrate your paper, but they cannot be the core literature of your work.

Please try to focus mainly on only articles published in good, ranked economic journals. In some specific cases you can may also use a (text)book as source. If possible, you should avoid quoting working papers. Since working papers are not published yet, they have not passed the customary

relevance and quality tests of the refereeing process, so you cannot take their correctness and quality for granted. If your topic is very new or if the working paper will be published soon (it is “forthcoming”), you can use the working paper. If you are not sure if you can use the working paper, ask your supervisor whether using a specific working papers is fine.

4.3 Declaration of authorship

On a last, additional page (which does not count towards the number of pages of your paper), you have to sign a declaration that you wrote the your paper without any outside help and without the usage of any sources other than those indicated:

“I assure that I wrote this seminar paper/bachelor thesis/master thesis on my own without the usage of aids other than indicated. I only used the indicated sources. All literally or analogously translated paragraphs of the original sources are marked as such. The work has not been submitted to any examination office in the same or a similar form. Hereby I agree that the digital version of the work is checked by plagiarism detection software in the case of plagiarism suspicion.”

Place, date, and signature

4.4 Submission

Send your paper (as PDF, PS or DVI file) to appliedmicro@rub.de **on schedule**. Please make sure that all necessary fonts have to be embedded when creating the PDF file, and that your PDF file does not contain any password protection. Please do not send DOC, DOCX or ODT files. First, those files may look different on every computer or printer, and second, not everyone works with the office package of your choice. Check whether you need to hand in an additional **printed** copy.

4.5 Formal requirements of the submission

Make sure that you submit your complete work on schedule. If your piece of work has to be submitted officially via the exams office (Prüfungsamt) or uploaded to FlexNow, please make sure that you follow all formal requirements incl. deadlines set by the exams office.

5 The presentation

In your presentation, you will have the occasion to introduce your fellow students to your topic and draw their interest. So this section deals with both your presentation as well as the dissemination of knowledge. A necessary condition for a good presentation is a deep understanding of your topic, which is assumed in the further course of this section.

As with guidelines for writing scientific papers, there are lots of companions for oral presentations. The article by the psychologists Bromme & Rambow, published in the journal *Das Hochschulwesen* (Vol. 41, Nr. 6, pp. 289-297) in 1993 is highly recommended (it is in German, though). If you understand German, you may want to read the whole article. The three basic principles of Bromme & Rambow are:

- You can only draw interest if you are interested in the topic yourself.
- The art of presenting can be learnt and practised.
- The presentation has to be oriented towards the audience.

In the following, the most important issues of Bromme & Rambow are summarized and slightly adjusted to the subject of Economics. When reading these lines, think about your own experiences as a listener at bad presentations. You learn most from both good and bad examples. Treat yourself to Kurt Tucholsky's "[Ratschläge für einen schlechten Redner](#)" (Advice for a bad speaker, again in German).

5.1 Preparation

The most important task when presenting is reducing the content to the **essentials**. Focus on the core of your topic and on the "take-home-message". Adjust your speech to your **audience**, e. g. take into account their previous knowledge, their motivation, their interests. Excite the audience in the same way that you find your topic interesting and exciting. If possible, practice the talk before the actual presentation in front of another person.

It is quite natural to have **stage fright**. A good speaker needs some adrenalin. It is good to be excited before and during a presentation (after all you want to take the audience on your journey), but you should not be nervous. Be well prepared, but do not prepare every detail, it is ok to improvise a bit. Have an open attitude, maintain eye-contact with the audience, and breathe calmly and evenly. Small file cards can help you to prepare your presentation, and you may feel safer if you have your main points written on the cards. However, please make sure you do not focus on the cards and instead try to establish and maintain eye-contact with your audience.

5.2 Development of the concept

Just as the outline of your dissertation has a logical structure, your presentation has to have a **concept**. How do I start the presentation? Which slides do I display at which moment in time? What do I tell the audience at which slide? How much time do I need for it?

A well structured concept allows you to rely on a few keywords and speak freely without reading from your slides. Remember that you are giving a talk and not reading a lecture. A good concept is also a "red thread" (as one says in German) which the audience can use as guide during your presentation. Explain at first **why** you are speaking about **what** you are going to speak about. Refer to the red thread during your presentation. It is also sensible to relate your topic to the other seminar topics.

A **group presentation** can also increase the audience's interest and help to avoid monotony. If you present a topic as a group, plan the presentation jointly, even if different parts are presented

by different speakers. A simple allocation of the sections to different speakers leads usually to a presentation without a common thread.

Often the audience will ask some **questions**, especially if you manage to raise the attention of the audience (i. e., if your presentation is good!). It has become usual to ask questions in between and not to wait until the end of your talk. With these questions, the audience shows its interest in your topic. There is nothing worse for the speaker than a silent and yawning audience. So, be well prepared for questions. After answering the questions, return to the common thread of your presentation.

5.3 Time management

Besides the concept, the **time management** plays a crucial role in a successful presentation. Time management could be summarized as follows: "Less is more." As a general rule, a presentation takes more time than you initially assume. This is another reason why the prior practice of the talk is so important. Always remember Kurt Tucholsky's quote: "Man kann über alles reden, nur nicht über 45 Minuten (You can talk about anything, but not longer than for 45 minutes)." This does not imply that 45 minutes is always the appropriate length for every presentation. You should ask your supervisor how much time is roughly available for your presentation.

You should also consider which sections of your presentation could possibly be skipped if time is too short (despite a careful planning). You don't need to mention that you have skipped a section due to time constraints - simply adjust the time management of your presentation as the talk proceeds.

5.4 Formulae and mathematics

Above we mentioned that you should write your piece of research in a clear and easy to understand language such that the reader does not need additional sources to understand your text. This requirement is even more valid for your presentation, because the audience does not have the chance to stop your talk and consult additional source. You should talk in such a way that the audience can easily understand and follow what you say. Only a few highly gifted people are able to quickly understand a complex formula and its derivation within seconds. So avoid complex mathematical expressions if possible, and focus instead on the economic intuition behind the formal result. If your dissertation contains the result for n individuals, show the outcome for e. g. $n = 2$ in your presentation. Since you will have to explain and interpret every formula during your speech, it is advised to include only these formulae that you actually understand.

5.5 Slides and beamer

Only very few gifted speakers are capable of keeping an interesting line of development during a long talk without any visual support and without losing the common thread from beginning to end. We less gifted speakers need to rely on visual aids like slides or a beamer.

Here again the rule applies: "Less is more". Do not overload the slides. Some keywords are enough, you can explain further content in your talk. Do not copy verbatim the text of your written piece to the slides under any circumstances! Choose an adequately large font (at least 20pt) and use a sans-serif font (those are easier to read on a screen). Be parsimonious with colour, pictures, and animations. Large tables and complex diagrams overstrain the audience. If your topic makes it necessary that you present a complex diagram or a large table, think about how you can explain to your audience this complex item and take an appropriate amount of time into account. You can find additional design tips for your slides in the references.

Remember that using slides and beamers also carries some risks. Sometimes a speaker tends to speak to the slides instead of speaking to his audience. Another problem could be having too many slides, which sometimes leads to a quick slide-spotting talk.

5.6 End of the presentation

To **end** your presentation, you should go back to the beginning and arrive full circle at your topic. Summarize the most important issues of your topic. Which points do you want the audience to take home? The end should contain the message that the audience should remember (hopefully) even after several weeks. So do not worry about repeating the main message again.

6 Evaluation criteria of the written work and of the presentation

The following criteria are taken into account for **evaluating your paper**:

1. Topic orientation: specification/scope, goal, result, no superfluous content, no repetitions
2. Outline of the paper: logical structure, common thread,
3. Models: choice and motivation of models, illustration, declaration of variables, application, trade-off width versus depth, currentness, rank/quality,
4. Contribution/self-dependence: critique of models/literature, independent acquisition of methods not learned during studies, extension of models etc.,
5. Form: style, orthography, list of contents and bibliography, precision of illustration, scope of work, formal requirements, etc.
6. quality of the references, Journals, if possible no working papers

The following criteria are taken into account for **evaluating your presentation**:

1. Topic orientation: goal, result, no superfluous content,
2. Outline of the presentation: logical structure, common thread,
3. Intelligibility of the presentation, audience orientation, maintain eye-contact with audience
4. Slides: comprehensible, clear, helpful slides.

The **grading** of the written work and of the presentation is based on those criteria. A written piece of research is very good if it explains all the relevant models and the relationships between the models. Conversely, a dissertation is not satisfactory if the theoretical models are explained in an unstructured or even wrong way, if important sources are not considered, if the work is mainly based on non-scientific sources (Wikipedia, newspapers) or if it violates principles of good scientific practice (plagiarism).

7 Final remark

If you have any questions or if any doubts arise while you work on your topic, please contact your supervisor before it is too late. Have fun and good luck writing and presenting your work!

8 Sources on scientific writing and presenting

- Rainer Bromme & Riklef Rambow. (1993) "<https://www.uni-muenster.de/PsyIFP/AEBromme/lehre/leitfaden/referate.html> Die Verbesserung der mündlichen Präsentation von Referaten: Ein Ausbildungsziel und zugleich ein Beitrag zur Qualität der Lehre," *Das Hochschulwesen*, 41:6, pp. 289-297.
- Bünting, K.-D., Bitterlich, A. & Pospiech, U. (2006) *Schreiben im Studium: mit Erfolg. Ein Leitfaden*. 5. Auflage. Berlin: Cornelsen Scriptor.
- Disterer, G. (2011) *Studienarbeiten schreiben. Seminar-, Bachelor-, Master- und Diplomarbeiten in den Wirtschaftswissenschaften*. Berlin und Heidelberg: Springer.
- Kruse, O. (2007) *Keine Angst vor dem leeren Blatt. Ohne Schreibblockaden durchs Studium*, 12. Auflage. Frankfurt/M.: Campus.
- Schiecke, Dieter (2003) "Klare Botschaft – Tipps für zuschauergerechte Präsentationen," *c't* 24/2003, S. 178. Tipps zur Gestaltung von Folien und Präsentation aus der "technischen" Seite.
- [Werner Stangls Arbeitsblätter](#) provide lots of assistance for learning, thinking, communication, moderation etc. You also get a worksheet for [presentations](#), for [rhetoric](#) and Kurt Tucholsky's "[Ratschläge für einen schlechten Redner](#)".