

## Writing a thesis at IRENE

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### 1. Introduction

If you are studying in the Master of Science in Applied Economics (MScAPEC) or the Bachelor of Science in Economics and Business, you can write a thesis at the Institute of Economic Research (IRENE).

This document provides general guidelines how to conduct your thesis project. Your supervisor may have further advice or specific requirements, which should be clarified in advance. In addition, for administrative requirements please consult these websites:

- MScAPEC: [www.unine.ch/mscapec](http://www.unine.ch/mscapec), admitted students, writing your thesis
- Bachelor: [www.unine.ch/seco/en/home.html](http://www.unine.ch/seco/en/home.html), students, bachelor thesis and internship

An important part of the thesis consists of conducting a research project independently. Your supervisor will, however, provide guidance about the topic, data, and methodology. In addition, he/she will answer questions if you are stuck with your project.

The thesis consists of a research project summarized in a scientific paper. This paper should

- clearly specify the research question;
- use relevant resources (e.g., literature, data), and suitable methods (e.g., statistics, regressions, interviews, literature review) to address the research question;
- differentiate your contribution from existing research;
- communicate the findings in a grammatical, clear, and objective way.

We recommend that you stick to the following order to organize your research project:

1. Write a research proposal (choose topic, define research question, find data sources, review key literature, explain your main contribution)
2. Do the research (empirical work, theoretical work, summarize the literature you read)
3. Write up the main body of your paper (e.g., data, method, results)
4. Write up the supporting part of your paper (conclusion, introduction and abstract)
5. Revise your manuscript (proofread, restructure if necessary)

To allocate your time efficiently, expect that you spend about 20% of your time reading and defining (or adapting) your research question, 40% doing the actual research, and 40% writing and revising the paper. It is expected that you spend 25-30 hours to obtain 1 ECTS. For a 30 ECTS master's thesis, therefore, expect to work about 750 – 900 hours.

Writing on a research project is rarely a linear process because you do not know what you will find in the end. When writing the results section, for example, you may realize that you need additional empirical evidence. Or, you may adapt your research question because you stumble upon a particularly interesting result. You may also add a relevant paper that you missed after you have written your conclusion. This implies that you switch back and forth between the steps mentioned above. However, it is important to keep in mind your goal and time limitations.

## 2. Writing the proposal

First, get in touch with one of the professors, lecturers, or post-doctoral researchers teaching in the program. Choose the potential supervisor according to the topic of your interest. You find their research interests on the institute's homepage ([www.unine.ch/irene/en/home.html](http://www.unine.ch/irene/en/home.html)) and our personal websites. Also, the director of the MSc APEC program can send you a list with research areas of the faculty.

Then, directly contact your potential supervisor by e-mail explaining briefly why you are interested in writing a thesis in this domain. In the e-mail describe your research idea in a short paragraph. Afterwards, the potential supervisor will contact you for a bilateral meeting or propose another supervisor that may be more suitable for your interests.

The bilateral meeting serves to answer potential questions from your side, discuss the timeline and, most importantly, narrow down the topic. Three common types of research at our institute are empirical studies, literature reviews, and theoretical analyses. Sometimes, a literature review seems appealing if you want to avoid working with data or theoretical models. However, writing a good literature review is challenging because you must clearly show what your contribution is. If you consider a literature review, first consult the following [homepage](#) and this [slide deck](#) with some good advice.

Once you agree with your potential supervisor on a potential topic, you will prepare a short research proposal. The proposal comprises at most two A4 pages and should:

- state the research question, motivation (why the question is important), and type of analysis (empirical, theoretical, interviews, meta study, literature review, ...)
- describe potential data sources
- describe potential methods
- mention at least three closely related papers and explain how your project differs, that is, your contribution to that literature
- propose a timeline when you will write and submit the thesis

The research proposal serves to organize your work and is a condition that you can officially start with your thesis. It is possible, that your potential supervisor will ask for some changes before you can start. Importantly, the proposal is a plan for your project. Of course, plans can change during the project. If there are substantial changes, discuss these with your supervisor.

### 3. Conducting the research

Empirical research sometimes feels like finding a needle in the haystack. If you knew what you will find and where you find it, you do not have to (re)search in the first place. So this is normal. Also, do not be discouraged if you do not find any (statistically) significant results. Showing that there might be no relationship can be interesting, especially if it contradicts an established result in a new context. Usually, a good strategy is to replicate the findings of a related paper in order to check whether you mastered the methods you want to apply. Then, you can vary your approach if you think that other researchers missed an important point.

If you choose to work with theoretical models, start with an existing model and adapt it to show that, for example, a particular result is not robust or that the adapted model explains real-world phenomena better. Another strategy is to apply an existing model to a new research question.

For a literature review you must read, read, and read. However, make sure that you keep your eyes open for patterns that you observe in the literature (contradictory findings, trends over time, and differences among groups of countries, etc.). These patterns will help you later on to organize your thesis and write an interesting review. The same advice applies to the literature section in an empirical or theoretical paper.

In any case, keep a diary while doing your actual research (for example in a word file or a notebook). This diary does not have to be well articulated or nicely formatted. But it will help to recall what you did, especially once you start writing up your results.

### 4. Writing the thesis

You have done your research, found interesting results, prepared tables and figures: now is the time for writing things up.

**Process:** The first step is to set up a structure for the thesis. One traditional structure for an empirical paper is: Abstract, Introduction, Literature review, Methodology and Data, Results, and Conclusion. There are plenty of other possibilities. It is, however, important that the structure is consistent with your arguments.

Do not write the supporting parts of your thesis in the beginning (i.e., Abstract/Introduction/Conclusion). One possibility is to first write the literature review and the methodology (basically an extended version of the research proposal). Then, write up the results section. At the very end, work on the supporting parts.

As a rule, put one idea in one paragraph. This means that if you start with a new thought, result, or argument, you start a new paragraph. This helps the reader to follow your argument. A helpful approach is to put the main message at the top of the paragraph. You will remove this later. However, as an intermediate step, you should be able to get the main idea of your paper by simply reading the main messages that you put above your paragraphs. Also, in English academic work, each paragraph should start with a [topic sentence](#). That is, a general sentence that introduces the topic of each paragraph. This helps the reader to follow your argument.

Another important rule is that the space allocated to a given part in the thesis should not necessarily reflect the time spent in pursuing the research. This is particularly true for empirical work.

When you are done with the first version of the entire thesis, set it aside one or two days and then proofread and revise. Set different tasks on different days: spend one day to detect grammatical errors. Use automatic grammar and spell checks (see some additional advice related to AI below). Spend another day to revise the structure of the paragraphs. Spend a day on checking the formatting of the thesis. Etc. Finally, iterate: the written pieces you submit should never be the first draft; there is always space for improvement.

**Abstract:** The abstract is a concise summary of the paper. The purpose is that other researchers quickly get an idea what you do and whether they should continue reading. Write it at the very end. Keep it below 100 words.

**Introduction:** This section should be a summary of your paper and highlight clearly the contributions relative to the existing literature in the area. Here are some general recommendations

- Upper limit four pages
- Motivate your work and why it is interesting (why should we care?); try to catch the readers interest and curiosity
- Then explain what you do, the major contribution of your paper, your research question (in a way a casual reader can understand)
- Explain your main results
- Explain how your work relates to the most important literature (are they in favor, do they contradict?); avoid a fully-fledged literature review, however
- This is only a preview, so keep it simple, concise, and clear

**Literature review:** This section contains a brief review to put your findings in some context. The first purpose of the literature review is that you show that you identified the most important related papers and you are familiar with existing work. The second purpose is to set the stage and motivate your own work.

- Choose at least 5 closely related and important papers. There is no need to mention every paper that you read. Nobody is impressed if you include irrelevant papers in the literature review. Your reader expects a concise summary of the literature relevant for your work
- Find a way to organize your review. Do not state paper 1 found x, paper 2 found y, paper 3, etc.; find a pattern (are there opposing views, does everybody agree, is there a point everybody misses?)
- Set your contribution off against the previous studies: Are you answering a question differently? Do you find different results? Why?

**Conclusion:** Keep your conclusion short and do not simply reiterate what you already said in the introduction. It is the moment to put your findings in a broader context and/or acknowledge limitations. If applicable, it is also the place to discuss policy implications that

may go beyond the narrow context you analyzed. Do not speculate, however. The conclusion still belongs to the research paper and must be objective.

**Appendix:** As a general rule, put everything that you discuss at length in the main text. Figures and tables that you mention only in one sentence can often be deferred to the Appendix. You can also defer lengthy data descriptions and sources to the appendix. However, make sure that the reader has enough information when reading the main text without switching back and forth.

**Format and language:** There are no restrictions about word processing software (Probably you want to use MS Word or some version of LaTeX if you use many formulas). A suggestive formatting for the text is: 12pt font size, 1.5 line spacing, either some paragraph spacing or indentation, justified alignment, and 1-inch margins. Avoid very long or very short paragraphs, aim for 8-12 lines.

You can write either in French or in English (Bachelor thesis) or in English (Master thesis). Consult some of the writing tips in the next section for improving your academic writing style. A boring text will attract less attention even if the results are groundbreaking. Generally, use a simple, neutral, academic tone.

When you report numbers in tables and figures, use a suitable unit and round to sensible number of digits after the decimal point (use 1.23 instead of 1.23435345; change the unit to avoid numbers such as 0.000000345 or 3,300,000,000).

Make sure that tables and figures are self-explanatory, axes are clearly labelled, and the reader can easily spot what you want to describe. Add notes if figures and tables are difficult to understand. In the text you need to clearly explain the content of each figure and table reported, and vice versa all the quantitative results in the text should refer to a specific figure or table. The font in tables and figures should be large enough so that an average person can easily read everything.

**Length:** The master thesis yields 30 ECTS and the bachelor thesis 12 ECTS. Therefore, a bachelor thesis is shorter than a master thesis. As mentioned before, 1 ECTS corresponds to 25-30 hours of work. But this does not necessarily determine the length of the thesis if, for example, a lot of the work is reflected in programming code. Therefore, the length of your thesis will differ depending on its type the specific requirements of your supervisor. Usually, a master thesis should be no longer than 80 pages, while, a bachelor thesis no longer than 40 pages (counting the main text, charts, tables, appendices, references). However, the goal is to maximize the number of interesting findings, not the number of pages! You receive your grade for the research and clarity of exposition. If you manage to convince the reader of your findings with fewer pages, all the better.

**Plagiarism:** Beware of plagiarism! We expect you to cite related work when necessary (more information on plagiarism and the use of AI is provided below). A pledge of honor is a mandatory part of your thesis (forms are available on the bachelor or master studies' homepages). In case of plagiarism, thesis will be deemed as failed and can entail administrative sanctions and disciplinary consequences. Any formulation, idea, research, reasoning or analysis borrowed from a third party should be correctly and accurately

indicated as such, clearly and transparently, and in such a way that the original source is immediately recognizable. Here you can find general information on how to avoid plagiarism:

[www.unine.ch/unine/home/etudes/academique/plagiat.html](http://www.unine.ch/unine/home/etudes/academique/plagiat.html).

Note that Wikipedia and similar online sources (including AI) can be problematic; here are some [guidelines how to work with Wikipedia](#) in an academic setting. As a rule, you should find and cite the original source of the information posted on Wikipedia. That way you show that you verified that the information is correctly reproduced on Wikipedia. Direct references to a Wikipedia page should be avoided.

**How to cite correctly:** To avoid plagiarism, you should properly cite work from other authors. Citing other authors does not take out value of your own work but rather shows that you have a good understanding and knowledge of the research in your field.

The general principles are the following:

- If you take an idea or a result from another article and explain it in your own words, you should indicate in the text the name(s) of the author(s) and the source.
- If you include their exact wording, you should put their words in quotation marks.
- If you cite more than two sentences, put them in a different indented paragraph with quotation marks.

Certain academic fields use footnotes to cite, but in economics we prefer using an *author-date* system. Footnotes should only be used when there is a remark that you cannot add in the text and that is not essential to your argumentation. However, they should remain rare (aim for a maximum of one per page on average).

The author-date system works as follows: every time you want to refer to the work of someone else, add in the text a parenthesis with the name of the author and the date at which the article or the book from which you took the content was published. If there are multiple sources, separate them with a semicolon. If there are multiple authors (more than 2), only mention the first one and add “et al.” to make it clear that other authors also contributed:

(Catassi and Fasano, 2014)

(Kurppa et al., 2014; Wolf et al., 2018)

If you quote a precise page from the article (using quotation marks), you should add the page number after the date:

(Biesiekierski, 2017, page 80)

You can also use the reference directly in a sentence. This is particularly helpful in a literature review. In this case, use the name of the authors and put only the date in parentheses.

Fatás (2016) discusses an agenda for structural reform in Europe.

At the end of your article, before the appendices, tables and graphs, add a references section where you list all the different sources you have used in your work in alphabetical order.

Your references should be formatted according to the type of publication. Here are the general formats for several publication types with concrete examples:

Book with a single author:

Surname, Name. Date. *Title of the book*. Place: Publisher.

De Vroey, Michel. 2009. *Keynes, Lucas: D'une macroéconomie à l'autre*. Paris: Dalloz.

Book with multiple authors:

Surname1, Name1, Name2 Surname2, and Name3 Surname3. Date. *Title of the book*. Place: Publisher.

Angrist, Joshua David, and Jörn-Steffen Pischke. 2015. *Mastering 'metrics: The path from cause to effect*. Princeton, New Jersey: Princeton University Press.

Chapter in an edited book:

Surname1, Name1. Date. "Title of the chapter." In *Title of the book*, edited by Name Surname, Chapter, Page range. Place: Edition.

Fatás, Antonio. 2016. "The agenda for structural reform in Europe." In *After the Crisis*, edited by Francesco Caselli, Mário Centeno, and José Tavares, Chapter 2, 1-30. Oxford: Oxford University Press.

Journal article:

Surname1, Name1, Name2 Surname2, and Name3 Surname3. Date. "Title of the article." *Title of the Journal*, Volume(Issue): page range.

Garriga, Carlos, Rodolfo Manuelli, and Adrian Peralta-Alva. 2019. "A macroeconomic model of price swings in the housing market." *American Economic Review*, 109(6): 2036-72.

News or magazine article:

Surname1, Name1. Year. "Title of the article." *Title of the newspaper*. Full date of issue.

Farine, Mathilde. 2019. "La hausse des taux de la BNS apparaît toujours plus lointaine." *Le Temps*. 12.02.2019.

Website content:

Name of the author/institution/firm. Year. "Title of the page." Accessed Day.Month.Year. Link.

Banque Nationale Suisse. 2019. "Stratégie de politique monétaire." Accessed 21.06.2019. [https://www.snb.ch/fr/i/about/monpol/id/monpol\\_strat](https://www.snb.ch/fr/i/about/monpol/id/monpol_strat).

If you cite multiple works from the same author(s) that were published the same year, add a letter after the date both in the text and in the references section, for example (Biesiekierski, 2017a; Biesiekierski, 2017b).

You can find more examples of publications and their reference format [here](#). Or have a look at this [manual for an alternative citation style](#).

It is fine if you choose to follow other formatting rules. What is important is that you agree with your supervisor and that you are consistent in all your work. You can also use a reference management software such as Zotero or Mendeley, or, if you write your thesis in LaTeX, add your references to your BibTeX library.

## 5. Guidelines on the use of AI

Generative Artificial Intelligence (AI) is a rapidly evolving field. Every day, we learn about the new capabilities of AI assistants. Clearly this development will affect how we conduct economic research. However, because these tools are trained on specific data sources, many of which are far from academic, their output is often vague, opaque, misleading, or outright wrong. We have written a report on the use and misuse of [AI in economic research](#) targeted to students in economics. The report contains a list of useful tools, use cases, as well as recommendations for students and instructors. In what follows, we reiterate the most important recommendations for students writing a thesis in economics.

### Permission

- *AI assistants are allowed if their use does not violate the rules of scientific integrity, legal provisions, or specific rules of the instructor or the university.* We believe that AI assistants will become indispensable tools in the workplace. Therefore, students should learn how to use these tools and what their limitations are.
- *AI assistants are allowed to facilitate repetitive and secondary tasks.* The faster repetitive tasks are dealt with, the more time is left to think about the research question and how to answer it. Such repetitive tasks include spell-checking, improving grammar, debugging code, formatting the references list, brainstorming ideas, etc. This list may differ for different courses (e.g. debugging code using AI may be forbidden in a programming course).
- *AI assistants are allowed as a search tool.* Like the internet, for example Wikipedia, AI assistants give access to vast amounts of information that can provide ideas, literature, and examples for motivating a research question. Therefore, such assistants are allowed as search tools (like search engines that give access to information on the web). Of course, any output has to be vetted for correctness and relevance in all cases, and the original source has to be cited (see below).
- *AI assistants are allowed to get feedback.* AI assistants will give students feedback on how writing or coding skills can be improved. Students should compare what they wrote and what the AI assistant suggests to improve their writing and coding. Feedback is an essential part of the learning process. Although this feedback may not always be correct and is certainly not a perfect substitute for discussions with colleagues and instructors, it is an additional means for pondering over one's work and improving one's skills in the process.
- *If it is uncertain whether AI assistants are allowed, contact the instructor.* Instructors may forbid using AI assistants entirely or for specific tasks. If the AI assistant does the task that has been assigned or relevant parts of it, then the use of AI is forbidden.



## Originality

- *AI assistants are not allowed to generate the work itself.* A research paper must be the student's original work. Therefore, creating an integral part of the work using AI assistants is forbidden. Examples include writing the literature review, writing the introduction, collecting the data to be analyzed, performing a descriptive analysis of the data, or writing a code in a programming course. This list is not exhaustive and may differ depending on the specific course.
- *Using output from an AI assistant based on an uploaded document is often problematic.* Asking an AI assistant to write an introduction based on the uploaded thesis means that the student uses AI for an integral part of the work. The same holds if the student asks an AI assistant to write a literature summary based on uploaded papers. Also, letting an AI assistant conduct data analysis is problematic because this often constitutes an integral part of the thesis. Of course, an exception may be if AI is the subject of the research itself (e.g. evaluating whether AI is useful for producing economic forecasts). Finally, uploading documents and data that are protected by intellectual property rights may infringe legal provisions.

## Transparency

- *Output from AI assistants must be labeled with a citation.* According to the rules of scientific integrity, the work of others cannot be passed off as one's own. Therefore, students should not use AI output as a source without citation (whether in original or paraphrased form). The University of Basel has good [guidelines on how to cite such sources](#).
- When using AI assistants for secondary tasks (e.g. to improve language), it usually suffices to declare its use in an Appendix.
- *When AI assistants were used for certain tasks, it should be declared in an Appendix.* AI assistants may significantly reduce grammar or spelling mistakes. Moreover, they may speed up other repetitive tasks. For transparency, students should declare the use of AI assistants. We show an example of such an AI checklist in the report on [AI in economic research](#).

## Quality

- *Output from AI assistants is not regarded as a scientific source.* Even if information from AI assistants is appropriately cited, its direct use is not recommended. AI is trained based on documents created by other authors. Even if AI assistants use information without appropriate citation, students cannot do the same. Instead, students should find the information in the original scientific source and cite it accordingly. This increases the credibility of the information and attributes the idea to the correct author.
- *Students are responsible for the correctness and relevance of output generated by AI.* The work students submit is regarded as their own. Any mistakes or irrelevant information will be attributed to the students, even if AI is correctly cited. This implies that students must verify the original source and vet the output from AI assistants for correctness and relevance before use. Remember that AI assistants only reproduce content on which they were trained. They will miss relevant research if they do not include the most recent working papers and work-in-progress. So, we should not only

rely on AI assistants but also use some traditional academic tools (e.g. Scopus, Google Scholar, IDEAS/RePEc, for searching relevant literature).

## 6. Evaluation

Grades are set by your supervisor. So make sure to ask him/her for specific criteria. Typically these will include:

**Structure:** The structure and exposition of the thesis should be clear support the arguments made. The sections and paragraphs should follow a logical order.

**Content:** The content should be factually correct, but also, the contribution should be novel and independent. In addition, the research question should be focused and clear and, in the end, the thesis should answer it. Finally, the student should show that he/she has a firm grasp of the relevant research.

**Methodology:** The student should apply empirical and/or theoretical methods that are relevant to answering the research question. The thesis should explain the method's important aspects and argue why it is adequate for answering their research question. The method should be executed correctly.

**Form:** The thesis should have a standardized format and bibliography as well as correct spelling, grammar and citations. Figures and tables should be well formatted and self-explanatory, i.e., they should be easy to understand with the included descriptions, titles and notes without having to read the written main text.

**Difficulty:** We judge the overall difficulty of a thesis (for example, extensive data work or methodologies not available in standard software packages).

**Overall impression:** Here we consider the student's commitment, creativity, independence and proactivity.

**Defense (only for master's thesis):** Students have to present their master's thesis. Instructors will consider the performance at the defense as well (quality of presentation, answers to questions).

## 7. Ressources

**Help from our side:** If you need help, please contact your supervisor with specific questions and be prepared for the meeting. You do not want to waste time searching your laptop for charts and results.

### Plagiarism and AI:

- Regulation regarding plagiarism at the University of Neuchâtel ([www.unine.ch/unine/home/etudes/academique/plagiat.html](http://www.unine.ch/unine/home/etudes/academique/plagiat.html))
- Blog post on what constitutes original work ([www.unine.ch/blog/home/methodes/le-travail-academique-original.html](http://www.unine.ch/blog/home/methodes/le-travail-academique-original.html))

- AI in economic research: A guide for students and instructors ([ideas.repec.org/p/irrn/polrep/24-03.html](https://ideas.repec.org/p/irrn/polrep/24-03.html))

**Literature review and organization of citations:** The resources below are just examples. Note that we do not provide support for any of these tools.

- You get access to many journals if you are logged in the Unine network; otherwise, ask [Unine bibliothèque](#)
- Search literature and export citations: [IDEAS/RePEc](#), [Google Scholar](#), [EconLit](#), [Scopus](#)
- Organize and structure citations: [Citavi.com](#), [JabRef](#), [EndNote](#) (note that you can obtain a copy from [SITEL](#))
- Write thesis: MS Word, LaTeX ([miktex.org/](https://miktex.org/), [www.overleaf.com/](https://www.overleaf.com/))

### Thesis templates:

- The title pages for your theses are available on the master or bachelor studies websites
- Word and LaTeX templates are available on [www.dankaufmann.com/teaching](https://www.dankaufmann.com/teaching)

### References on writing well in economics (in English):

- [Nikolov's research paper writing tips](#)
- [Greg Mankiw's Guidelines](#)
- [Cochrane's PhD writing tips](#)
- The Elements of Style, by William Strunk Jr.
- On Writing Well, The Classic Guide to Writing Nonfiction, by William Zinsser
- Economical Writing, 1999, by Deirdre McCloskey

### Data sources:

- World Bank: [data.worldbank.org/](https://data.worldbank.org/)
- Our World in Data: [ourworldindata.org/](https://ourworldindata.org/)
- Federal Statistical Office: [www.bfs.admin.ch](https://www.bfs.admin.ch)
- World Inequality Database: [wid.world/](https://wid.world/)
- Penn World Tables: [www.rug.nl/ggdc/productivity/pwt](https://www.rug.nl/ggdc/productivity/pwt)
- Maddison Project: [www.ggdc.net/maddison/maddison-project/home.htm](https://www.ggdc.net/maddison/maddison-project/home.htm)
- IMF: [www.imf.org/en/Data](https://www.imf.org/en/Data)
- OECD: [stats.oecd.org/](https://stats.oecd.org/), [data.oecd.org/](https://data.oecd.org/)
- FRED (US): [fred.stlouisfed.org/](https://fred.stlouisfed.org/)
- DBNOMICS (World) [db.nomics.world/](https://db.nomics.world/)
- Measuring Worth (US, UK): [www.measuringworth.com](https://www.measuringworth.com)
- Dataseries (CH): [www.dataseries.org/](https://www.dataseries.org/)
- Banque Nationale Suisse (CH): [data.snb.ch/](https://data.snb.ch/)