

Bachelor thesis manual
BSc² Econometrics / Economics

2020-2021

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1. Foreword

Congratulations! The fact that you are reading this manual means you are well on your way to obtaining your bachelor's degree. A considerable part of your remaining time in the bachelor will now be devoted to writing your bachelor thesis. In this manual you will find all the information you need for a smooth start and finish to your thesis.

Read the information in this manual carefully. For further information you can go the Thesis Hub on Canvas. All the information about writing your thesis at ESE can be found there. On the Thesis Hub you will for example find links to online modules about writing the literature review, formulating research questions, scientific writing, creating figures and tables, Matlab, referencing, and much more. Make sure to follow these modules if your skills in these areas are a bit rusty. Also have a look at the links to various useful online resources, manuals, and the overview of thesis related courses and events.

Communication regarding registration and supervision takes place via Sin-Online, Canvas and your student e-mail. Hence, check these regularly. If you forward your student e-mail to your personal e-mail, make sure that messages from Sin-Online and Canvas do not end up in your spam.

Best of luck with writing your bachelor thesis!

2. General

a. Goals of the thesis

In the bachelor thesis you can show the knowledge and skills you have accumulated in the past years at ESE. In the thesis you show that you can set-up, execute and report on a scientific research project.

The learning goals of the bachelor thesis are as follows:

- You can independently conduct research, and execute the different phases of research (formulating a research question, choosing the research design, choosing and executing the research methods, gathering data, drawing conclusions and giving advice based on the results).
- You can independently select and apply a suitable method from the methods that have been taught in the bachelor programme, and reflect on the outcomes in relation to the research question.
- You can report your research correctly and concisely, satisfying academic standards.

Your thesis is a report based on the replication and extension of a published academic paper. The academic paper functions as the starting point of your own research. Based on this paper you formulate your own research question, which should deviate from the reference paper. It can be a follow-up question, in which you analyse a different version of the problem (a different situation, different techniques, different data) using your own creativity. To see how this difference affects the conclusions, you first replicate the part of the paper that is relevant for your research question. Next, you extend the analysis to the new research question and you draw conclusions about the differences.

Because your thesis is by construction closely related to the reference paper, you should pay special attention to the following elements:

- An adequate motivation of your extensions. Why are these extensions interesting and relevant? What additional insights do they give us?
- A discussion of the methods in your own words. You should explain the methods as you understand them. You are not allowed to copy from the article.
- A discussion of the replication. Can you replicate the results of the reference paper exactly? If not, how large are the deviations? Can you explain them?

For more information on the assessment criteria of the bachelor thesis, go to the chapter “Handling in the thesis”. Read the criteria carefully *before* you start writing your thesis.

b. Starting requirements

In order to start with the bachelor thesis you need to have been admitted to and successfully finished the major seminar.

c. Difference with a bachelor’s thesis in Econometrics & Operations Research

Compared to the thesis in the bachelor programme Econometrics & Operations Research, the thesis in the BSc2 programme Econometrics should have a larger and stronger Economics component. It should relate stronger to the economic background (theory) of the research question, and contain a more

extensive discussion of related literature. In particular, the thesis should contain a comprehensive exploration of the related literature, and make clear how it contributes.

d. Combining the thesis with an internship

It is not possible to combine your bachelor thesis with an internship for credits. If you wish to do an internship in the bachelor you should do so in either Block 1 or 2 or do an extracurricular internship.

e. Copyright

As author of the thesis, you in principle have the copyright. This means that you have the right to make the thesis public and to reproduce it. If others would like to use your thesis, they cannot do so without your prior permission.

In some cases the supervisor may give suggestions that can be regarded as original ideas that the supervisor may wish to use for future publications. If you would like to use such ideas in your thesis, this may have consequences for the extent to which you are allowed to disclose or distribute the (preliminary) contents of your thesis. In such cases, you need to make further arrangements with your supervisor regarding disclosure and distribution.

In case the supervisor provides you with data or if you collect data in a way suggested by the supervisor, you can only use this data for the purpose of the thesis. You are not allowed to publish the data, make the data available to any third party, or let any third party inspect the data without your supervisor's approval.

f. Ethical use of data and the General Data Protection Regulation

When working with personal data make sure that you handle it with care and comply with the regulations outlined in the General Data Protection Regulation. On the Thesis Hub you can find the guidelines you need to follow when collecting, handling and storing data.

g. Contact person

For all major specialisations the contact person is Dr. T.A.B. Dollevoet. Questions can be mailed to bachelorthesis-eor@ese.eur.nl.

3. Overview of activities and deadlines

a. Planning

Many of you will want to start with a master programme in September 2021. This means that you need to finish your thesis in July 2021. This is very well feasible, and to finish on time you need to adhere to the planning below. Note that the bachelor thesis can only be written in period April to July. Supervision outside this period is not possible!

Note that on the deadline for submission of the final / resit thesis, the thesis needs to have been *submitted* to the supervisor via Sin-Online. The assessment process in the Thesis Workflow does not have to be completed on that day.

Monday March 29		Articles available
Monday April 12	23:59h	Submit article ranking
Monday April 26		Supervisors announced
Friday May 14	23:59h	Hand in research proposal
Friday May 28		Finish replication part
Friday June 11		Finish extensions
Sunday June 20	23:59h	Submit draft version of thesis
Sunday July 4	23:59h	Submit final version of thesis
Sunday July 18	23:59h	If thesis insufficient, submit resit version of thesis

b. Delay and failing the thesis

It is possible that you experience delay while writing your thesis. If this happens, take action immediately and discuss with your supervisor how you can get back on track. In case you continue to find it difficult to stick to your planning, talk to the study advisor for advice. For more information, see the section Personal problems.

If you fail to hand-in your thesis on the first deadline (Sunday, 4 July) or if you have handed in a thesis that is of insufficient quality, you have the opportunity to hand in your (improved) thesis on the resit deadline on Sunday, 18 July. This will have consequences for your grade though, the grade of all theses handed in after 4 July will be at most 6.0.

c. Requesting an extension of the deadline

Students who, due to personal circumstances, cannot make the deadline of July 4, can request an extension. To do so, you need to report your personal circumstances to the study advisor latest mid-May. End of May you will hear if you received an extension and for how long. Note that the maximum extension given will be one month.

If you have received an extension, your grade for the bachelor thesis might not be booked in Osiris before the master application deadline of 1 August. In that case you can ask your supervisor to write a Thesis Statement. This statement declares that you will have finished your thesis successfully by 31 August at the latest. The supervisor decides whether or not you are eligible for a Thesis Statement.

4. Getting started

a. Registration

Topics for the bachelor thesis will be made available by the thesis coordinator of your major specialization in the form of a collection of papers. You receive a survey in which you should rank all available papers for your major. Based on the preferences of all students in a major, the bachelor thesis coordinators match each student with a paper. It is not possible to propose your own topic nor to select a particular supervisor.

When the matching of papers and students is complete, you can find in the My Paper section of Sin-Online who your supervisor is. In this part a separate channel for your thesis is made, the Thesis Workflow, to which you and your supervisor have access.

Once assigned, the supervisor takes over from the coordinator regarding supervision of the thesis. He or she will supervise you during the writing of the thesis and is the one to turn to for all questions related to the thesis. Most supervisors plan a kick-off meeting in week 1 of Block 5. Make sure you are present during this meeting.

Communication regarding registration and supervision takes place via Sin-Online, Canvas and your student e-mail. Hence, check these regularly. If you forward your student e-mail to your personal e-mail, make sure that messages from Sin-Online and Canvas do not end up in your spam.

b. Thesis Workflow

For guidance the supervisors use the Thesis Workflow, the digital thesis guidance and assessment system in Sin-Online. It is used for:

- Registration of theses.
- All communication between you and your supervisor: registration of planning, agreements and interim versions (messages and attachments), feedback from your supervisor, milestones reached and confirmed deadlines.
- Handing in of the thesis.
- Registration of scan on plagiarism.
- Assessment of the thesis and the associated process.

More information about how to work with the Thesis Workflow can be found in the *Thesis Workflow Manual* on the Thesis Hub. It contains step-by-step instructions, including screenshots, regarding the activities mentioned above.

c. The thesis proposal

Writing a thesis proposal is an obligatory part of the bachelor thesis process. The aim of this proposal is to assess whether your ideas are feasible and will result in a proper academic thesis within the available time frame. In the proposal you essentially set-up the framework of your thesis. Make sure that you invest sufficient time and effort in your proposal, it will make writing your actual thesis much easier.

A proposal typically consists of 3 to 5 pages and contains the following elements:

- A main research question/problem statement, followed by a sufficiently substantiated set of sub-questions.

- The relevance of the subject: Why and for whom is the research interesting and relevant? Is it purely of scientific relevance, or is it also of interest for practical applications?
- The theoretical background of the problem.
- Research methodology: Which (econometric or operations research) methods and techniques will be applied in your research? Why are the methods appropriate here?
- Required data sources and how to obtain this data.
- Motivation: Why is the research necessary? Why is the existing knowledge on this topic insufficient? How will the research address these issues?
- A summary of relevant literature: What kind of results have been obtained in previous research on this topic? How does the research relate to the existing literature?

d. Required skills

When writing your thesis, you will need many of the skills you have learned in the past years at ESE, such as making a research design, finding literature, and academic writing. If you need to brush up on any of these skills, you can do one or more of the online modules offered on the Thesis Hub or on the EUR library website, or (re-)read the book *Academic Writing Skills for Economics and Business Administration* (Karreman et al., 2017).

If you are struggling with writing your thesis in English, you might consider doing the Academic Writing course at the EUR Language and Training Centre. More information can be found here: <https://www.eur.nl/en/education/language-training-centre/english>

e. Prior knowledge

In the thesis, you will use many of the things you learned during your bachelor. It is possible that you forgot some things which are actually important for your thesis. Note that it is your responsibility to make sure that you (again) master this prior knowledge. Your supervisor can provide you with feedback, but cannot provide private courses.

5. Supervision

a. What to expect

In writing your bachelor thesis, you should demonstrate that you can do independent research in econometrics and operations research. The thesis supervisor will give you advice when necessary but it is your own responsibility that you formulate research ideas and meet deadlines. In contrast to the seminar you independently solve your problems as much as possible, and rely less on (the ideas of) your supervisor. Your supervisor is available about once a week for questions, and may arrange office hours where all thesis students are welcome to ask questions. The supervisor will give you detailed feedback on the proposal and the draft version of the thesis. Supervisors do not correct programming code.

b. Do's and don'ts

To ensure a fruitful and smooth cooperation with your supervisor, follow the do's and don'ts below.

Must-do's

- Make a work plan together with your supervisor. In the work plan you outline which steps you need to take and when, in order to meet all the deadlines. Also discuss during which periods you and your supervisor are not available.
- Share the work plan with your supervisor in the Thesis Workflow and ask for his or her approval. Note that this is a mandatory part of the thesis process
- Send your work to your supervisor well in advance of a meeting. Hence, several days before the meeting!
- Address all comments of your supervisor before you ask for new feedback.
- Take the full responsibility for writing your thesis. You are expected to take the initiative in all steps of the process.
- Carefully read this thesis manual and follow the described procedures and guidelines.

Recommended do's

- Use the first meeting to determine what you can expect from your supervisor and what your supervisor can expect of you. For example agree upon how and how often you will stay in touch and when you can expect feedback on your work. This can prevent misunderstandings and delays.
- Make a short summary of all agreements that you made during your conversations with your supervisor and send it to your supervisor using the Thesis Workflow.
- Ask for a meeting with your supervisor or go to his or her office hours if you have many or complex questions. You are entitled to 3 meetings. During a(n) (online) face-to-face conversation you will often get the most valuable feedback.
- Always send the best work you are able to do. The better the quality of your work, the more high-level the feedback will be.
- Be explicit about the questions you have and the parts of your work on which you want feedback.
- You may expect timely feedback on your work. If feedback takes longer than normal or longer than the agreed upon feedback period, get in touch with your supervisor. Be polite in your message.

Don'ts

- Do not send e-mails to your supervisor. All written communication needs to be through the Thesis Workflow.
- Do not constantly ask small questions to your supervisor. Save them up and ask them all at once.
- Do not ask questions about practical matters to which the answers can be found in this manual or on the Thesis Hub. Check the manual and Thesis Hub first before contacting your supervisor.
- Do not ask / expect your supervisor to do part of the work for you. For example, your supervisor will not correct programming code, nor will he or she correct all your typos, nor will he or she provide you with the set-up of your research.
- Do not ask your supervisor to give a preliminary indication of your grade. Do also not ask what you need to do to reach a certain grade. This is against ESE policy and the supervisor will not answer these questions.
- Do not expect your supervisor to work nights or weekends just so you can finish your thesis on time. If you hand in your work late, you run the risk that you will not get your feedback in time, and you will have to accept the consequences of missing the deadline.

c. Second assessor

The second assessor judges your thesis once it is ready. The main task of the second assessor is to ensure that your thesis is assessed independently and fairly. For the bachelor thesis, you do not have contact with the second assessor. The bachelor thesis coordinator will assign the second assessor. The grade is determined jointly by the supervisor and second assessor.

d. Problems with your supervisor

You may encounter problems with your thesis supervisor. Discuss these issues with your supervisor and try to resolve your differences. If you cannot find a solution together, you can go to the bachelor thesis coordinator of the major or to the study adviser.

e. Personal problems

Guidance for personal problems can be given by study advisers, student counsellors or university psychologists. For more information about guidance for personal problems you can contact the study advisers.

The study advisers and the university psychologists run a Thesis Group. If you experience difficulties in motivating yourself to work on your thesis, you can participate in one of these groups. For more information about the thesis group given by the study advisers, contact the study advisers or visit an open consultation hour. For more information about the thesis group offered by the university psychologists, see: <https://www.eur.nl/en/education/practical-matters/advice-counselling/workshops/thesis-group>.

6. Writing the thesis

a. Language

The bachelor's thesis has to be written in English.

b. Title page

The front page should at least contain the following information:

ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

Bachelor Thesis [programme xxx]

Title thesis

Name student: xxx

Student ID number: xxx

Supervisor: xxx

Second assessor: xxx

Date final version: xxx

The views stated in this thesis are those of the author and not necessarily those of the supervisor, second assessor, Erasmus School of Economics or Erasmus University Rotterdam.

c. Referencing

Good referencing is essential. The reader of your thesis must always be able to find out where you got the information. That is why you always need to indicate in your text when you use the work of others. The reader can then consult the bibliography to find the source. It is not allowed to simply copy something from someone else. This is plagiarism which is considered to be fraud.

In the Skill classes in bachelor 1 and bachelor 2 you learned the APA (American Psychological Association) guidelines for referencing. The APA guidelines are widely used in Econometrics journals. You need to use this reference method in your thesis. Please refer to the Thesis Hub or the book *Academic Writing Skills for Economics and Business Administration* (Karreman et al., 2017) to review these guidelines.

d. Plagiarism

The final version of the thesis will be checked for plagiarism. Plagiarism is quoting or paraphrasing phrases and ideas of others and presenting it as your own work. An example of plagiarism is copying a text from the internet into your thesis without indicating this by means of quotation marks and by providing a clear reference to the source of this text. Plagiarism is considered to be a serious crime. It is fraud, even though you may not have done it intentionally. If someone finds out that you have committed plagiarism, you will be reported to the ESE Examination Board. The sanction depends on how serious the committed fraud is.

For more information about different forms of plagiarism and how you can avoid plagiarism in your thesis, have a look at the manual “What is plagiarism and how to avoid it” on the Thesis Hub. More information about fraud: <https://my.eur.nl/en/ease/bachelor-students/fraud>

e. Self-plagiarism

If you copy-paste a piece of text from an assignment or paper you wrote earlier in your bachelor in your thesis, without inserting a reference to this previous work, it is called self-plagiarism. Just as “regular” plagiarism, this is not allowed. If you want to refer to work you have done in the past, you should use the regular referencing method you also use for other resources. Also note that it is not acceptable to copy-paste large pieces of text from previous papers or assignments. Your bachelor thesis is original work, which can build on a previous assignment, but cannot be a copy. The plagiarism check will also detect self-plagiarism.

f. Formatting + Number of pages

When writing and formatting your text, please keep in mind the following:

- Include a table of contents and page numbers.
- Use a professionally looking font-type that is easy to read. Use font size 11 or 12. The font size can be slightly smaller (10) for table contents, table notes, and footnotes.
- Format your tables and figures according to academic standards. Do not copy – paste output from statistical programmes! The book *Academic Writing Skills for Economics and Business Administration* (Karreman et al., 2017) contains guidelines for formatting your tables and figures.
- The length of the thesis is at most 30 pages (margins 2.5 cm, font size 11pt, line spacing 1.5). Additional appendices are allowed. Note that all relevant information has to be included in the main text.
- In case you use uncommon abbreviations, include an overview of the abbreviations used and their meaning. As a general rule, prevent the use of abbreviations as much as possible. The first time you use an abbreviation in the text, always write it out in full.

g. Programming Code and Appendices

You should add an appendix to your thesis that contains the code of the programs you have written. Appendices do not count for the page limit. Alternatively, if your programming code is very elaborate you can choose to send it to your supervisor via Sin-Online instead of including it all in your thesis. If you opt for this then upload a ZIP-file with your programming code and include a short description of the programming files in your thesis.

Please stick to the conventions discussed in the programming courses with respect to programming style and the placement of comments and explanations. You can also add appendices with supplementary material, such as additional tables and figures. However, if you discuss these tables and figures in detail in your main text, they should be part of the main text.

7. Handing in the thesis

a. Procedure for handing in the thesis

For detailed step-by-step instructions on how to hand in your thesis in the Thesis Workflow, please consult the *Thesis Workflow Manual* on the Thesis Hub. You submit the final version of your thesis by attaching it to a regular message to your supervisor in the Thesis Workflow. The thesis needs to be in .pdf format. Your supervisor will then select this version of your thesis as the final version. This step immediately activates the plagiarism scan. In addition, the supervisor will change the status in the Thesis Workflow to “Start final thesis assessment”. You will receive a confirmation e-mail that the supervisor has set your thesis as final. Please check if the supervisor has selected the correct version. The process then consists of the following steps:

- A button will appear which you need to click to start the assessment process. If this button is greyed out, the plagiarism scan is somewhat delayed. As soon as the plagiarism scan is completed the button will become active.
- Click the “Start final thesis assessment” button and provide the necessary details about your thesis. As part of the process you also need to fill in an evaluation about the thesis process and your programme.
- Assessment takes place. The supervisor and second assessor discuss the contents and quality of the thesis, and determine the grade.
- Within 19 days after you have handed in your thesis, you will receive your grade as well as some written feedback on your thesis.
- If your grade is sufficient, it will automatically be sent to the exam administration. If the quality of the thesis is not sufficient to pass, you may be invited to make adjustments and hand in a new version of your thesis. The deadline for this new version is 18 July, 2021. The grade of your thesis will then be at most 6.0.

b. Graduation

Your bachelor diploma is not automatically requested after you finish your thesis and have completed your coursework. You need to do this yourself. For more information, see:

<https://www.eur.nl/en/education/practical-matters/graduation>

This also means that you can hand-in your final thesis before you have finished all your coursework.

If you would like to attend the Bachelor Graduation Day in November, make sure that you request your diploma latest 31 August.

Note that your enrolment is also not automatically terminated when you graduate. You need to terminate your enrolment yourself. More information and the procedure to unenroll can be found here: <https://www.eur.nl/en/education/practical-matters/registration/terminating-enrolment>.

c. Thesis Repository

All approved ESE theses are entered in the EUR Thesis Repository (<http://thesis.eur.nl/>), the digital thesis repository of the Erasmus University. You can choose whether your thesis should remain private, meaning it cannot be accessed by others, or if it can be made public.

d. Establishment of the grade

The bachelor thesis will be independently assessed by the thesis supervisor as well as a second assessor using the assessment criteria below. Both are academic staff members. A satisfactory result (grade 5.5 or up) must be obtained for the bachelor thesis.

e. Assessment criteria for the thesis

These criteria are the characteristics of a good thesis. Note that they do not form a calculation instrument for the final grade.

Objective and main question

- The subject matter is clearly defined.
- There is a clearly formulated main question.
- The main question is based on relevant academic concepts and theories. These concepts and theories are explained in a theoretical framework.
- The main question leads to relevant hypotheses.

Methodology

NB: This can apply to data collection and analysis, as well as to literature research.

- The research method is clearly justified, described and repeatable.
- The research structure is suitable to the main question.
- Relevant qualitative and/or quantitative research methods are employed.
- A relevant method was chosen for the collection and (if applicable) processing of data.
- The data collected are adequately and correctly presented.

Analysis

- The analysis and interpretation of the data are accurate, reliable, comprehensive and verifiable.
- The analysis and interpretation of the data are sufficiently profound.

Profoundness of the research

- The research is profound (complexity, depth and scope of the research).

Structure and design

- There is a logical and relevant structure.
- There is a consistent and clear chapter structure that is relevant to the main question.
- The chapters and sections are provided with suitable titles.
- References comply with applicable academic standards.
- Literature references are complete, consistent, and correct.

Internal consistency

- There is a coherent, logical and convincing argument.
- The argument leads to theoretically embedded conclusions/partial conclusions that are relevant to the main question.

Use of language

- The language used is correct and clear.
- The text is to the point and does not discuss issues that are outside the scope of the research questions.

Conclusions and recommendations

- Conclusions have been drawn regarding the main question based on the analysis.
- The main question is answered.
- The hypotheses are discussed.

Relevance, added value and originality

- The thesis makes a relevant contribution to the knowledge within the field of study.
- Individual vision, originality and creativity are clearly displayed.

Process

The thesis supervisor will assess the student's research and writing process on the following criteria:

- Work rate
- Independence
- Attitude and dedication

8. More information

When you have read this manual, you are off to a good start with your bachelor thesis. Also have a look at the other information on the Thesis Hub. There are many useful documents and links there, including:

- Online Skills modules about defining research questions, writing the literature review, referencing, Matlab, creating figures and tables, and other thesis related topics.
- Manuals about the Thesis Workflow and referencing.
- Links to the online trainings offered by the University Library. You can find all available trainings here: https://service.ubib.eur.nl/training_support/#/?k=v4a2hz
- Links to other useful online resources.
- An overview of short courses / workshops which are useful for writing the thesis.
- An overview of thesis related events, such as thesis awards and graduate conferences.

9. References

Karreman, B., Werner, G., van der Molen, H., Osseweijer, E., Ackermann, M., Schmidt, H., & van der Wal, E. (2017). Academic Writing Skills for Economics and Business Administration. Amsterdam: Boom|Lemma.