

MASTER THESIS

ECONOMETRICS & MANAGEMENT SCIENCE

Thesis Guideline 2016-17

ECONOMETRICS & MANAGEMENT SCIENCE

Department of Econometrics
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Introduction

The thesis is an individual assignment about a subject from your Master's specialisation, in which, by means of an objective and clear main question, you report about your research.

This manual contains necessary information concerning the content and the process of writing a thesis. It consists of two parts:

- A general part containing School regulations and procedures concerning theses.
- A specific part containing additional information about writing a thesis for the master's programme Econometrics & Management Science.

1 General information Erasmus School of Economics

1.1 Requirements

Study progress

The thesis is generally written at the end of the master's programme. It is advised to finish all previous courses before starting to write your thesis.

Language

The thesis must be written in the English language. Only in rare and exceptional circumstances can programme management, in deliberation with the thesis supervisor, consider the possibility of the thesis being written and submitted in Dutch.

Graduating with two specialisations

Students who want to graduate with two specialisations are advised to write two separate theses. This means two different subjects, two different supervisors and two different defences / graduation ceremonies. Each thesis should be worth 16 credits. If you are considering graduating with two specialisations, then contact the exam administration of ESE as soon as possible about the practical implications regarding the graduation date(s) and obtaining the diploma with two specialisations. Also graduating with two specialisations might have consequences for your tuition fee and enrolment status, for which students should contact ESSC beforehand. In some circumstances, students may be permitted to write one combined thesis (32 credits) for both specialisations; however, this is not recommended for logistical reasons.

Copyright and confidentiality

No agreements concerning confidentiality will be issued or signed by thesis coordinators. When necessary, students can refer to article 1.16 of the collective labour agreement of universities. Here it states that an employee is obliged to keep all information derived from his position confidential. This obligation also applies following termination of the employment contract.

1.2 Writing a thesis

Time line

16 credits are allocated to the writing of a master thesis. This translates into $16 \times 28 = 448$ hours – that is around 3 months of fulltime work. A student needs to complete the master thesis within one year after a thesis supervisor has been assigned to the student. Should the time limit be exceeded, decisions regarding possible continuation are made by the thesis coordinator, based on the progress-to-date and prospects for eventual completion.

Front page

The front page should at least contain the following information:

ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

Master Thesis [programme xxx]

Title of thesis: xxx

Name of student: xxx

Student ID number: xxx

Name of Supervisor: xxx

Name of Second assessor: xxx

Date final version: xxx

Thesis workflow

For guidance the supervisors use the Thesis Workflow, the digital thesis guidance and assessment system in SIN-Online. Through the thesis website, which you can find via the homepage for master students at www.esseur.nl, you will find direct web links to the thesis workflow of the different specialisations.

The Thesis Workflow is used for the following:

- Registrations of theses
- Registration of agreements and interim versions (e-mails and attachments), possibly including milestones reached and confirmed deadlines.
- Submission of final thesis
- Registration of scan on plagiarism
- Assessment of the thesis and the associated process.

Additional information per specialisation

Additional information about specific rules and regulations for your specialisation can be found in the second part of this manual.

1.3 Submitting the thesis

Plagiarism

The final version of the thesis will be checked for plagiarism. Plagiarism is using phrases and ideas of others and presenting it as your own work without appropriate quotation, attribution, and citation. An example of plagiarism is copying a text from the internet without providing a clear reference to the source of this text. Plagiarism is a form of academic dishonesty and therefore a serious crime. It is fraud, whether or not it is done intentionally. If you are suspected of having committed plagiarism, you will be reported to the ESE Examination Board who will adjudicate the matter and determine appropriate sanctions. The severity of the sanction depends on how serious the committed fraud is.

More information: http://www.eur.nl/english/eur/publications/cheating_and_plagiarism/

Publication

Your authorisation is required to publish (parts of) your thesis. All approved ESE theses are entered in RePub, the digital thesis repository of Erasmus University. You can determine whether your thesis will be publicly available by choosing either 'public' or 'private' in the thesis workflow.

You can consult the database via the website of the University Library or directly via:

<http://thesis.eur.nl/>.

Establishment of the grade

The master's thesis will be assessed by the thesis supervisor as well as a second assessor. Both are academic staff members. A satisfactory result (grade 5.5 or up) must be obtained for the master's thesis. The result will be published on the grade list.

Assessment criteria for the thesis

If the thesis supervisor judges the master's thesis to be of a satisfactory level, the thesis will be assessed by a second assessor and the thesis defence will be scheduled. Thereafter, the thesis supervisor and the second assessor formally establish the grade for the master's thesis. The thesis will be assessed based on the following criteria:

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, and legitimised by up-to-date academic developments or developments in society.
- The main question leads to relevant hypotheses in a systematic and valid way.

Methodology

NB: These criteria can apply to data collection and analysis, as well as to literature review

- The research method is clearly justified, described and replicable.
- The research structure is suitable to the main question.
- Relevant and up-to-date quantitative and/or qualitative 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 of sufficient profundity.

Profoundness of the research

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

Structure and design

- There is a logical and relevant structure, consisting of the following: title page, table of contents, abstract/summary (max. 1 page), main question, results, discussion, conclusion and references.
- 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 the 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, professional and clear.

Conclusions and recommendations

- Conclusions are formulated in a way that sufficiently takes into account presuppositions, basic principles and the limitations/opportunities of the selected methodology.
- The conclusions are formulated into realistic recommendations with consideration of academic and social standards and values.
- The main question is addressed.
- The hypotheses are evaluated as either rejected or not rejected.

Relevance, added value and originality

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

Process

- Work rate
- Independence
- Attitude and dedication.

Defence

- Form of the presentation
- Content of the presentation
- Demonstrated command of the topic and ability to answer questions about it.

2 Additional information MSc. Econometrics & Management Science

2.1 Content of the thesis

Writing a thesis is a compulsory part of the Master Programme in Econometrics & Management Science. As a general rule, the research topic of the thesis should be closely related to the content of the courses in your Master programme. It should be the final proof that you have acquired an adequate level of econometric skills, and know how to use and communicate about them. In case the research topic of the thesis is not related to the content of the Master programme, prior approval should be obtained from the Chair of the Examination Board of the Erasmus School of Economics (ESE). The thesis is written on an individual basis. Cooperation with other students is allowed only with prior approval from the Examination Board and only if the individual contributions of each student can be well identified.

2.1.1 Credits

A thesis in Econometrics & Management Science comprises 16 ects, with an addition of 4 ects for the proposal. The credits for the proposal are listed as FEM21030 Thesis Proposal E&MS.

2.1.2 Thesis and internships

The thesis is allowed to be written in combination with an internship at a firm or institution, with prior approval by the thesis coordinator. The thesis and proposal are valued at 16+4 credits, independent of the duration of the internship. Students are responsible themselves for negotiating the terms of the internship (length, payment) with the firm or institution. The thesis supervisor acts as academic internship supervisor, and monitors the econometric level of the thesis research conducted during the internship. Students are responsible for finding a suitable internship. Sometimes internship possibilities are offered by faculty members of the Econometric Institute. These internships are available at the Blackboard site of FEM21031 or the SIN-Online channel of the specialization. An overview of available internships maintained by FAECTOR (Faculty Association Econometrics & Operations Research) can be found at <http://www.faector.nl>. The thesis supervisor or coordinator does not have any responsibility with respect to the agreements made with the company and students are responsible for ensuring that the resulting thesis satisfies the required criteria of the programme. Students are also responsible for fully completing the internship.

2.2 Trajectory

We distinguish the following steps for the completion of the thesis (and the master programme).

1. Formulate the thesis topic and request a supervisor.
2. Write the thesis proposal.
3. Conduct the research and write the thesis.
4. Approval and submission of the thesis.
5. Defence of the thesis and graduation

2.2.1 The start: the thesis topic

The thesis is written as the final stage of the Master programme. Blocks 4 and 5 are reserved for the thesis. Therefore, at the latest you should start with the thesis directly after your Case Studies course. Otherwise it will not be possible to finish the thesis in the current academic year. The time that staff members can spend on thesis supervision is very limited outside blocks 4 and 5.

The first step of writing a thesis is the formulation of the topic that you want to investigate. This can be done already prior to the start of Block 4. Use the form on the thesis website¹ to describe your topic. You should give a topic description, research questions, links to the literature, and a description of the data and methods you intend to use. You send the form to the thesis coordinator via SIN-online, who decides whether the topic is suitable for a thesis. The thesis coordinator will determine whether the topic implies research at the level of the Master programme, and whether the research is feasible (enough data available, methods can solve the problem). If the topic is approved, the thesis coordinator appoints a faculty member to act as supervisor, based on availability and research interests. The thesis coordinator will aim to achieve the best possible match between the thesis' research topic and the supervisor's expertise.

The thesis coordinators assign supervisors in batches. They will make announcements on or around

- February 1
- March 1
- April 1
- May 1
- June 1
- July 18
- October 1
- December 1.

In blocks 4 and 5 they may make more frequent announcements.

2.2.2 Coordinator, supervisor and second assessor

Once assigned, the supervisor then takes over from the coordinator regarding supervision of the thesis. They will supervise you during the writing of the thesis and are the ones to turn to for all questions related to the thesis.

The thesis coordinator also assigns a second assessor (also called coreader) to the thesis. At the final stage of the thesis, the academic supervisor contacts the second assessor and provides a version of the thesis. The supervisor and second assessor discuss the contents and quality of the thesis. The second assessor can give comments and suggestions directly or via the supervisor. Second assessors are not available for questions during the writing of the thesis.

2.2.3 Thesis Proposal

Once a topic is identified, the proposal is the next step towards the completion of your thesis. The thesis proposal should clearly define the research project, how it will be conducted and in what time frame. It provides the structure for the thesis itself, and contains more information and detail than the topic description. It forms the basis for your cooperation with the supervisor and, in case of an internship, the supervisors at the firm or institution. Its writing takes up the first four to six weeks.

The proposal should be written in English and contain the following elements

- Definition of the problem/question. What constitutes the problem? Which aspects are important?

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http://www.eur.nl/ese/english/information_for/students/master_students/master_thesis/per_master_degree_programme/econometrics_and_management_science/

- **Relevance:** 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?
- **Literature:** What kind of results have been obtained in previous research on this topic? How does the research relate to the existing literature?
- **Motivation:** Why is the research necessary? Why is the existing knowledge on this topic insufficient? How will the research address these issues?
- **Methods:** Which (econometric) methods and techniques will be applied in your research? Why are the methods appropriate here?
- **Data:** What kind of data are needed and available for the research?
- **Time frame**

The proposal must be approved by the supervisor. Approval implies that the research project has the potential for a good master thesis. The proposal is binding: if you conduct the research as it is laid out in the proposal and the quality is sufficient, the thesis is ready to be submitted and will achieve a satisfactory grade. Of course, deviations from the proposal might turn out to be necessary (because of data quality, unreliable methods, etc.); this is common when conducting original research. Such deviations will be established in mutual consultation between you and your supervisor(s). These deviations should not require a completely new start.

The time frame is an important ingredient of the thesis proposal. It provides an approximate schedule for the work that needs to be done, culminating in a deadline as to when the thesis will be ready to be submitted. The supervisors are available for comments, feedback and help with the thesis during the period in the time frame. After that, supervisors are likely to have other obligations (teaching, research, or supervision of other students), and their availability will be significantly more limited.

The thesis proposal is not graded on a 1--10 scale. Instead, the (academic) supervisor gives a pass (approval) status to the proposal. The proposal needs to be approved before the thesis can be completed. The (academic) supervisor sends a form to the exam administration to inform them that the thesis proposal has been approved.

2.2.4 Supervision

You should meet on a regular basis with your supervisor to discuss the progress of your research. In case of an internship, these meetings can take place with only the academic supervisor, with only the external supervisor(s) or with all supervisors. It is advisable to make agreements on the frequency of the meetings with your supervisor(s) and to put these in the proposal.

The list below shows what you can expect from a thesis supervisor:

1. A kick-off meeting to discuss the research plan.
2. A meeting to thoroughly discuss comments on the concept thesis proposal.
3. Face-to-face meetings of about 4 hours in total to discuss the progress of the thesis.
4. A detailed reading of the concept version of the thesis with a thorough discussion in a meeting.
5. A detailed reading of the final version.
6. E-mail contact during the entire process to discuss smaller issues.

The sequence of the meetings mentioned in points 3--5 can be chosen to fit your and the supervisor's preferences. Supervisors typically distribute a short guideline with details about the structure of their supervision.

In total, the ESE assigns 30 hours for the supervision of a thesis. This includes the time that the supervisor and second assessor spend in meetings, but also the time for reading versions of the thesis and preparation for these meetings, as well as the time for the graduation ceremony. These 30 hours offer of course only a guideline, and do not impose strict boundaries on the supervisory time spent on a thesis.

Thesis supervisors have other tasks next to the supervision of theses. While you can expect a timely answer to questions, this does not imply an answer within the same day. Independently solving problems is a key component of original research and one of the assessment criteria for the thesis! Also for supervisory meetings it is important that the supervision time is spent efficiently. You should therefore do the following:

- Before each meeting you should clearly indicate what needs to be discussed, and which parts of the thesis are concerned. Making a list of issues to discuss and questions you may have may be helpful.
- You should send any material you wish to discuss (i.e., anything that you would want your supervisor to read and provide feedback on) well in advance of each meeting.
- Each time you send a new version of the thesis, clearly indicate which parts of the thesis have changed.

2.2.5 Approval and submission of the thesis

The supervisors and second assessors decide whether the thesis is good enough for graduation. If they approve the thesis, you prepare a final version of the thesis.

This version should also contain an abstract (150--200 words summarizing the research) and 3--5 key words.

The submission of the thesis comprises the following seven steps

1. You send a digital version of the thesis to the supervisor using the thesis channel of SIN-Online.
2. The thesis supervisor opens the official channel to submit your thesis. You will see a button with "request thesis defence" in the "My Paper" section.
3. After filling in the programme evaluation, you can submit the thesis, and indicate whether it should be privately or publicly stored.
4. Your thesis is checked for plagiarism.
5. The supervisor assesses the thesis and the process.
6. The second assessor assesses the thesis.
7. You are notified when the evaluation is complete, and can make an appointment with the exam administration for the defence.

When contacting the exam administration, make sure all other requirements for the master diploma are met.² You can make an appointment with the Exam Administration for the date and time of the defence. You are responsible to check beforehand that the supervisor(s) and second assessor are available on the desired date.

² See http://www.eur.nl/ese/english/information_for/students/master_students/masters_exam/.

The last date to submit your thesis to the Exam Administration in order to graduate in the academic year 2016-2017 is the end of August 2017 (the exact data will become available at on-line³). The defence then takes place in September 2017 (with official graduation date August 31, 2017). If the thesis is not ready before the end of August, you have to enrol again in the master programme, and have to (partially) pay the associated tuition fee.

2.2.6 The defence

The thesis defence is the final exam for the programme, after which you graduate. The defence consists of

1. A presentation (10--15 minutes), aimed at a general audience with little economic knowledge. You should explain the aims of the research project, the methods, the results and the conclusions.
2. The actual defence (approximately 35 minutes). The supervisor and second assessor question you on the thesis and its relevance and contribution to the field. The external supervisors can take part in the questioning. Student and supervisors agree on this beforehand.
3. The determination of the grade. The supervisor(s) and second assessor discuss the quality of the thesis and the defence, and determine the grade.
4. The graduation ceremony. The academic supervisor awards the diploma.

2.3 Troubleshooting

The completion of the thesis should not take for ever. Both the student and the supervisor should stick to the time frame and their responsibilities as agreed in the time frame of the thesis proposal. If it takes too long before a supervisor or second assessor responds to a version of the thesis, the student can contact the thesis coordinator for help. The thesis coordinator can then give instructions to enable a smooth finishing of the thesis. Similarly, if it takes too long before the student shows any progress on the thesis, the supervisor can contact the thesis coordinator for help. Progress should be visible on at least a monthly basis. The thesis coordinator can decide that the student is not really interested in the topic, and order a new start on the thesis, possibly with a new supervisor. Note that the total time available for supervision is restricted. For a new thesis, only the remaining hours for supervision are available. Requiring more hours has a negative effect on the grade.

2.4 More information

Information on the Master's Thesis and exam is also available at the following website:

http://www.eur.nl/ese/english/information_for/students/master_students/master_thesis

Information about the graduation ceremony, possible graduation days, and the associated deadlines can be found at:

http://www.eur.nl/english/essc/student_administration/degree/master/economics/

³ See http://www.eur.nl/english/essc/student_administration/degree/master/economics/.