

Master Project in Life Sciences Engineering

DIRECTIVES 2022 / 2023

(For students, professors and host labs in universities or companies)

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1. GOAL OF THE MASTER PROJECT

The Master project is the culmination of a student's work of study, analysis, design and implementation, which proves his/her engineering capacities.

In the context of a Master Project, the student works on a problem defined by the head of the laboratory where the project will be carried out: the laboratory may be at EPFL, at another university where the student is doing an exchange program, or in a company. The head of the laboratory must ensure that the student can carry out the necessary analysis and design work that will subsequently allow the EPFL advising professor to evaluate the engineering capacities of the student.

The results of the Master project are presented as a written report (thesis) and an oral presentation that is part of a viva-voce examination; both the thesis and the examination are graded.

The Master project is officially done during the 4th semester of the Master. The Master project can be done in the following settings:

1. in the lab of a professor from the SV School, or another EPFL School
2. in another approved university (NB requires a co-advisor professor in the SV School)
3. in a company (NB requires a co-advisor professor in the SV School)

The EPFL (co-)advising professor must approve the topic of the Master project. The student is responsible for obtaining this approval and for registering the project with the section.

2. SUPERVISION OF THE PROJECT

A teacher (PO, PA, PATT, scientist*) at EPFL School of Life Sciences is responsible for supervising the Master project. Students must select a Master project within the deadlines fixed by the SSV section. During the master project, the supervising professor is responsible for monitoring and evaluating the project's progress. The Life Engineering Sciences Section may confer this responsibility upon a professor in another EPFL Section, if requested by the student.

When the project is done outside EPFL, the head of the host laboratory is responsible for monitoring the progress of the student. This laboratory host will also be the main contact for the SV professor, who remains the official academic advisor for the Master project.

* https://www.epfl.ch/schools/enac/education/wp-content/uploads/2018/12/Ordonnance-controle-des-etudes_spet-2016.pdf

3. REGISTRATION

Formal registration for the Master project in IS-ACADEMIA is the responsibility of the student, who must respect the deadlines specified in the academic calendar and, of course, on the condition that they have already obtained the required 90 master credits. The choice of the project is made in agreement with a SV professor or a professor from another EPFL section, in accordance with the advising conditions outlined above.

According to the "https://www.epfl.ch/schools/enac/education/wp-content/uploads/2018/12/Ordonnance-controle-des-etudes_spet-2016.pdf", section 4 art. 12, studies cannot be interrupted between the master cycle and the master project. Which means that the student has to begin the master project immediately after obtaining the 90 credits of the master cycle.

4. LENGTH OF PROJECT

For the two Master programs, the master project has officially the following duration:

Within EPFL: 17 weeks

In companies or exchange University outside EPFL: 17 or 25 weeks

Official dates: <https://www.epfl.ch/education/studies/reglement-et-procedure/pdm/>

5. STATUS OF STUDENTS ON ACADEMIC OR INDUSTRIAL EXCHANGE

Even though they remain registered as EPFL students, when students do their master projects while on an academic or industrial exchange, they are subject to the rules of the host institution or company with respect to matters such as work schedule, holidays, confidentiality, salary, etc. The contractual link between the student and the host institution or company does not bind EPFL to the entity in question. Nonetheless, the student remains subject to the registration deadlines and thesis submission deadlines specified in EPFL's academic calendar.

6. EVALUATION DURING THE PROJECT

It is important for the EPFL advising professor to follow the project's and student's progress. In the case of exchange students, in agreement with the hosting laboratory in the university or company, the advising EPFL professor must ensure that the project fulfils all the criteria for EPFL Master's projects, and gives the student the opportunity to develop their intellectual and technical capabilities. For projects carried out at EPFL, the advising professor must meet with the student mid-semester to verify the progress of the project. For students who are working off-campus, this interview must be done either by phone or by requesting the student to submit a short intermediate report. In case of a problem, the advising professor must inform the section (pascale.zbinden@epfl.ch). In this case, in agreement with the section, he or she must find a solution, if possible including a re-orientation of the project in order for it to come to a successful conclusion.

The student must ensure that that the thesis is submitted by the deadline (see Section 4). The EPFL supervisor should monitor the progress of the thesis preparation, advising the student regarding time-management if necessary.

7. MASTERS THESIS

The student is expected to write the master thesis in English, in accordance with the following guidelines and in conformity with the ethics rules concerning plagiarism. This includes:

- the title (*see the page at the end of this document*)
- the student's contact information (last name, first name, address)
- the name of the EPFL lab, or the university or company in which the Master's project work was done
- the name of the EPFL advising professor or head of the laboratory where the work was done
- the name of the EPFL advising professor and the name of the head of the host laboratory (exchange)
- a summary (max 2000 characters with spaces)
- an introduction with a brief literature review
- materials and methods used
- results
- a discussion of results, placing the conclusions in the context of other relevant studies, and an statement of future directions for the research.
- relevant literature must be cited correctly.

IMPORTANT: the thesis must represent the work done by the student; if any data from co-workers is presented in the thesis, then it must be clearly identified as such in the text and figure legends. This is obligatory in order to be able to judge the student's work.

8. DATES AND FORMATS FOR THE THESIS

(a) The deadlines are indicated in the academic calendar <https://www.epfl.ch/education/studies/reglement-et-procedure/pdm/> . The thesis must be submitted by 12h00 (Switzerland) on the indicated day. The student must provide the electronic version(pdf) of the Master thesis to the SSV (pascale.zbinden@epfl.ch). Failure to submit by the deadline will be considered as failure of the Master thesis. The electronic version will be archived in the section on a CD. The section will take care of sending it to the EPFL supervisor and to the external expert- In order to allow adequate time for reviewing of the thesis, the date of the defense cannot be fixed during the week (5 working days) after the master thesis has been submitted.

(b) EPFL has strict policies to combat plagiarism. The electronic version of the document will be scanned for plagiarism. Any work found to contain significant plagiarism will be rejected. (For further information, consult the rules on plagiarism in the appendix at the end of this document, which are also available on the web at:

* http://documents.epfl.ch/groups/p/po/polylex/www/formation_etudes/bachelor-master/Plagiat-FR.pdf

9. THESIS DEFENSE - LOCATION

Together with the student, the supervising EPFL professor fixes the date of the exam and chooses the external expert. This information must be transmitted to sac-pdm@epfl.ch at least one month before the exam. Since it is considered as an official exam session, the oral examination is not public and is, therefore, limited to the student, the expert and the EPFL official advisor. If the professor would like to invite his/her lab, he/she should obtain the written agreement of the student. This document must accompany the evaluation sheet that is sent to the section. In principle, the thesis defense takes place at EPFL. For students on exchange, the oral exam may also be done via video conference or telephone conference call.

10. DEFENSE AND JURY

The oral presentation of the Master project by the student is in English and should last 30 minutes or less. The presentation is followed by an oral examination in English, which lasts at least 30 minutes. The jury is composed of the supervising EPFL professor and an expert from outside EPFL, nominated by the advisor and approved by the Registrar's office.

Additional people can attend the exam **with agreement of the student.**

In exceptional cases where the thesis contains confidential data, the thesis supervisor must indicate this to the advising professor from the start of the Master's project. A solution must be found between the advising professor at EPFL and the supervisor/host institution to ensure that the data remain confidential.

EVALUATION: The jury takes into account the following elements (see attached form in appendix):

- 1- Project management:** Did the student manage its/her time efficiently? Were they competent at the bench? Did they keep a comprehensible lab notebook? How much input did the student have into the experimental design? What are the student's problem-solving capabilities?
- 2- The academic content of the Master project:** Is the topic introduced properly? Are the results presented clearly? Are the conclusions valid? Are the results placed properly in the context of other studies?
- 3- The quality of the written report** (presentation of the report, clarity, precision, references, grammatical accuracy and absence of plagiarism);
- 4- The quality of the oral presentation:** was the talk well-structured? Were the slides clear?

11. CONDITIONS FOR PASSING

The Master project is considered passed when the student has submitted the work within the specified deadlines and received a grade of at least 4.0 (6 maximum; 0.25 point increments from 1.0).

12. EXTENSIONS

If the quality of the written thesis is considered inadequate, the EPFL advising professor can request that the student revise it within a two weeks period (including the oral examination) with the agreement of the section. Modifications may be made to the format, but not the content (data), of the thesis. If aspects of the data presented are considered inadequate, the text must be rewritten to accommodate the expert's comments.

13. WITHDRAWAL

Once it has started, a Master project **cannot be abandoned**, except for exceptional reasons, and with agreement with the EPFL advising professor and, during a mobility, the lab supervisor or the head of the company. In all cases the section must be informed.

Withdrawal from a project is considered as failure of the Master thesis. In the case of failing, a new master project can be proposed in another laboratory. A second failure is eliminatory.

14. POSTER : no poster is't required anymore.

Code of ethics for citing information sources

Plagiarism is unanimously considered a major breach of ethics, meriting sanctions on EPFL's part, possibly legal proceedings. Committing acts of plagiarism is incompatible with the honor code and ethical charter in force at EPFL.

In the educational environment, an author begins work by assembling and reading the results and ideas published by other authors. The quality of his/her work depends on the quality and the variety this gathered information. Today, the increasing proliferation of information underlines the importance of the issues of conscientious use and correct citation of these sources¹.

In order to guarantee conscientious use of sources of information on the part of EPFL students and staff, the EPFL Direction has enumerated the following rules:

1. Use of information must respect simple but strict ethical guidelines: the respect of intellectual property and truth forbids that one passes for one's own, even by omission, work that one has not accomplished.
2. Sources must be clearly cited, in such a way that an outside reader can verify for him/herself the quality and origin of the information.
3. In particular, students, researchers and teaching staff must be careful to distinguish between information coming from others and that which is their own:
 - a) *author citation must be indicated by quotation marks or styles used in the discipline;*
 - b) *Comments that reflect a text or are simple adaptations must be indicated as such ("here, we follow the ideas of X, adapting them to our context");*
 - c) *personal contributions should be indicated as such and are encouraged;*
 - d) *sections of computer code that are copied, modified or even simply inspired from existing code must be mentioned as such. A comment must accompany the code.*
4. The bibliography must be precise and allow a reader to locate the source (books, articles, etc.)
5. It is common courtesy to indicate important non-written information received orally.
6. Scientific information gathered on the internet must be identifiable. Texts, images, computer code and other information copied from a site must be referenced. The current method is to identify the URL and date referenced.
7. The user of an information source must respect its copyright. The use of copyrighted material is subject to precise rules². Copyright rules also extend to the educational domain³. Computer code is also copyright protected⁴.

For writing this ethics code, EPFL has used, with specific authorization, the ethics code of the University of Lausanne of June 27, 2005, concerning borrowing, citations and use of various sources,⁵ itself inspired by the Ethics Code of the Université catholique du Louvain for students concerning borrowing, citations and use of various sources, of February 9, 1998⁶.

1 <http://campus.hesge.ch/calism3/l1/index.html> (6.6.2007)

2 <http://www.wipo.int/about-ip/fr/> (6.6.2007)

3 <http://www.educa.ch/dyn/115722.asp> (6.6.2007)

4 <http://sri.epfl.ch/page1226.html> (6.6.2007)

5 <http://www.unil.ch/interne/page41076.html> (6.6.2007)

6 <http://www.ucl.ac.be/etudes/2002/libres/rq370.html> (6.6.2007)

**ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE
SCHOOL OF LIFE SCIENCES**



Master project in Life Sciences Engineering

TITLE OF MASTER PROJECT



Carried out in the laboratory of (lab name)
at (place, Institution)
Under the supervision of (name, title (Prof, PhD, head of lab if on exchange))

**ONLY for
master thesis
out of EPFL**

Done by

FIRST NAME AND LAST NAME

Under the direction of
Prof. first name, last name (advising Prof EPFL)
In the laboratory of (lab name)

EPFL

External Expert (First and last names, title of your oral exam expert, if different from your lab supervisor in the foreign lab and already mentioned above)

Lausanne, EPFL 2022

 Life Sciences Engineering Teaching Section

Student evaluation form

Student	First name:	Name:
Lab PI	First name:	Name:
	Laboratory:	Institution:
	Address:	

Skills	Outstanding	Very good	Good	Average	Insufficient
Scientific background					
Capacity to learn and to make progress					
Capacity to stay focused					
Capacity to communicate					
Capacity to propose hypothesis					
Capacity to solve problems					
Capacity to generate results and to deliver					
Capacity to work independently					
Lab integration					
Lab and technical skill acquisitions					
Lab meeting presentation					
Work dedication					
Work organization					
Work reporting and lab book keeping					
Specific understanding of his/her own project					
General understanding of other lab projects					
Within the students in your lab at the same level of training, you consider this student as:					
Would you recommend to this student to do a PhD?	Yes =>		No =>		

Place and date: _____

Signature: _____

Appendix V

Master Project Evaluation at EPFL, section SV

Title:

Student:

Professor:

Direct supervisor:

Expert:

Assistant(s):

A) Cross-curricular competencies (10% of score)

Spirit of cooperation, initiative, independence, timeliness, capacity for work, ...

Opinion of the professor

B) Scientific and technical contributions (20% of score)

Scientific, technical, methodology, precision, rigor, ...

Opinion of the professor and of the expert

C) Report (20% of score)

Personal contributions, consistency, clarity, quality of figures, bibliography...

Opinion of the professor and of the expert

D) Oral Defense (50% o score)

Personal contributions, consistency, clarity, quality of figures, bibliography, ...

Opinion of the professor and of the expert

Final grade :

Proposal for a prize : Yes No
Need for a supplement: Yes No (latest **2 weeks** after the final exam)

Signatures :

Place and date :

M...
EPFL supervisor

M...
Expert

Please send this form back to SSV-GE, Station 15
This form doesn't prevent to record the grade through your teaching portal on is-academia.