

Regulations for the Master's Final Project of the Master's Degree in Reservoir Geology and Geophysics at the University of Barcelona

Informed by the Master's Coordinating Committee on May 10, 2024

Approved by the Academic Committee of the Faculty of Earth Sciences on May 13, 2024

Approved by the Academic Committee of the Governing Council of the University of Barcelona on 26 of June of 2024

The regulatory framework for master's final projects (TFM) at the University of Barcelona, approved by the Academic Committee of the Governing Council on January 19, 2024, establishes the regulatory framework with general guidelines related to TFMs, which defines the common bases that ensure uniform and coherent actions at the UB, with the aim of ensuring quality in all phases of the preparation and evaluation of TFMs. The same regulation stipulates that each faculty must develop its own TFM regulatory framework, which can be common for all programs within the faculty or specific to each program. In this regard, the Academic Committee of the Faculty of Earth Sciences has decided that each master's program within the faculty should establish its own regulations (approved on September 14, 2015). According to article 3.3 of the regulatory framework, the Faculty's Academic Committee is responsible for approving these regulations at the request of the Master's Committee, as well as any subsequent modifications. This regulation must be made public and must be approved by the Academic Committee of the Governing Council. Within this regulatory framework, the following specific regulations for the Master's Degree in Reservoir Geology and Geophysics at the University of Barcelona are established.

Article 1. Definition

The Master's Final Project (hereinafter TFM) is defined as an autonomous and individual work that allows the student to demonstrate, in an integrated manner, the training content and competencies acquired throughout the master's program, as established by RD 822/2021. According to the curriculum of the Master's Degree in Reservoir Geology and Geophysics, the Master's Final Project course has a load of 25 ECTS credits.

Article 2. Characteristics of the TFM

2.1. The TFM is an individual project. Exceptionally, when the complexity or scope of the project justifies it, the TFM can be carried out by groups of more students. In these

cases, it is mandatory for the tutor to submit a justificatory report and obtain express authorization from the TFM coordinator and the Master's Academic Committee.

2.2. The TFM may be carried out in other institutions, organizations, or companies outside the UB and UAB that participate in the teaching of the master's program or that are related to the geological and geophysical exploration, characterization, and monitoring of basins and/or sedimentary reservoir systems. To do so, a specific collaboration agreement must be signed to carry out the work.

2.3. The TFM can be developed at the Faculty of Earth Sciences or in other faculties or services of the UB and UAB. To do so, an internal agreement must be signed to carry out the work.

2.4. The TFM must be carried out under the guidance of a professor or researcher who supervises the TFM and is responsible for facilitating and promoting the learning process. Co-supervision by two members can also be established. When the work is developed in an external institution, organization, or company, in addition to the academic supervisor, a supervisor from the location where the TFM is conducted must be appointed.

2.5. The TFM cannot be subject to recognition unless it has been developed at another university within the framework of an academic mobility program within the same degree program.

Article 3. TFM Modalities

Depending on its characteristics, the TFM may adopt one of the following modalities:

- a) Experimental work: definition of a problem, design of data collection, and discussion of results.
- b) Analysis of experimental data from previous experiments, compilation of works, public data, etc.

Article 4. TFM Organization

4.1. The TFM committee is responsible for appointing the coordinator of the TFM course and regulating the operating rules of the TFM for the Master's in Reservoir Geology and Geophysics. The members of the TFM committee are the same as those of the master's academic committee.

4.2. The functions of the TFM committee are:

- a) Approve the procedure for assigning projects to students.
- b) Develop and appoint the court that resolves appeals against TFM grades.
- c) Approve the evaluation rubrics.
- d) Resolve any incidents that may occur.

4.3. The functions of the TFM course coordinator (hereinafter, coordinator), by delegation of the TFM committee, are:

- a) Develop the teaching plan for the course.
- b) Appoint the evaluation courts for the public defense.
- c) Monitor the TFMs to ensure that all students have an assigned TFM that meets the necessary requirements, as well as resolve any arising questions.
- d) Publish the topics and assigned tutors through the appropriate information channels.

Article 5: TFM Tutoring

5.1. Any PhD holder from a higher education institution or public research organization can be a TFM tutor. If the tutor does not hold a PhD or does not belong to the institutions participating in the master's program, the tutoring must be shared with a PhD holder from the teaching team.

5.2. The functions of the TFM tutor are:

- a) Propose research projects that constitute the TFM.
- b) Design, in collaboration with the student, the objectives, methodology, and timeline of the research projects proposed by the tutor and chosen by the student.
- c) Provide the necessary methodological, analytical, and data processing resources to carry out the supervised research projects.
- d) In the case of projects carried out outside the institutions participating in the Master's teaching and supervised by non-PhD or external tutors, ensure that the research project adheres to the guidelines and characteristics of the Master's Final Project.
- e) Guide the student in the initial design of the two oral presentations.

f) During the research period, meet with the student at least once a month to check the progress of the research project and try to resolve any questions.

g) If strictly necessary, provide the basic knowledge and procedures so that the student can use those tools and techniques not covered in other master's courses and which are essential to carry out the research project.

h) Before starting the writing of the written report, hold a meeting with the student to verify and discuss the results of the research carried out and design the report.

i) Issue a confidential written report (there is a model available) evaluating in a non-quantitative manner the skills acquired by the student. This document must contain the authorization to present and defend the tutored work.

Article 6. Registration of TFM

6.1. Enrolment in the TFM can be effective in both semesters of the academic year, regardless of the enrolment model that the education has adopted, in accordance with current regulations. In any case, the student must meet the deadlines for selection of work and presentation.

Article 7. Performance and defense of the TFM

7.1 The assignment and choice of the TFM subject and tutor will take place in the first semester of each academic year. During this period, the student must find a tutor (and when required, a co-tutor) and jointly design the research project to be carried out. All members of the teaching staff who participate in the teaching of any of the Master's subjects are obliged to present at least one offer of tutoring or project, which will be included in a list to be distributed among the students. In the event that the student cannot find a tutor, he or she must contact the coordinator who will help him or her find a topic and person responsible for the TFM tutoring.

7.2 At the end of the first semester, the coordinator will publish the list of accepted works, with the name of the student, the tutor and, if applicable, the corresponding co-tutors.

7.3 The coordinator will classify the assigned TFM according to whether they have a more geological or geophysical route, to subsequently assign them to the corresponding court (see article 8).

7.4 The TFM research project will begin with a first oral presentation at the beginning of the second semester, in which the student must present the objectives, interest, methodology, feasibility and work plan. Their adequacy to the objectives and contents of the master's degree will also be assessed. In the event that the assessment of the TFM proposal is positive (pass), it will be possible to continue with the work, which will end with the presentation of a written report and its presentation and defense in a second oral presentation, at the end of the second semester. Both the two oral presentations and the written report will be evaluated by a court.

7.5 Characteristics of the first oral presentation

The president of the court of each itinerary, in agreement with the coordinator, will set the date of this first public exhibition which will take place at the beginning of the second semester.

In this first presentation, students will have a maximum of 10 minutes to present the objectives, methodology and interest of the work to be done. The exhibition will be followed by a round of questions from the members of the court with the aim of assessing the feasibility and adequacy of the proposed research project and suggesting or indicating changes or modifications that the student will have to take into account in its subsequent realization. This first oral presentation can be made in English, Catalan or Spanish, although the use of the first of these languages is recommended.

The oral defense of the proposed project will be supported by a presentation in computer support (for example, in powerpoint format) written in English.

Each student will upload the file of the presentation in PDF format on the course virtual campus within a period that will be from 24 hours before the call for the presentations of the corresponding itinerary, until the start of the same. This presentation will be the same that the student will use.

7.6 Characteristics of written memory

The written report must be carried out in English and in the format of a scientific article with an extension of 15-25 printed pages. It is a document that must be written with a line spacing of 1.5 and Arial font (minimum 10 pt.), and that must include:

- 1.- Cover page with the title of the work, author, name of the tutor(s) and title of the master's degree completed.
- 2.- Summary or abstract with a maximum length of 300 words. This summary must be delivered as a separate file in pdf format to the coordinator, and will be published on the official web page of the master's taken. If it is considered pertinent, this archive may be accompanied by a representative figure of the

work carried out. The written report must include the title and summary written in English and Catalan.

3.- Keywords, a maximum of 5, in English and Catalan

4.- Introduction and objectives, which includes the justification of the work, the objectives and/or working hypotheses.

5.- Methodology used (depending on the type of work).

6.- More significant results reinforced by graphs, tables, etc.

7.- Discussion of the results in relation to the objectives and/or hypotheses raised.

8.- It is necessary to include a discussion on the contribution of the TFM to the achievement of some of the Sustainable Development Goals and to Sustainability, and, if relevant, a reflection on the gender perspective.

9.- Conclusions.

10.- Acknowledgments (if considered relevant).

11.- Bibliography.

12.- If the work requires it, annex in digital format where data used to carry out the project is attached.

The written report must be submitted in paper format and in quadruplicate at the place and date indicated by the coordinator, at the end of June, between 7 and 15 days before the date scheduled for the second oral defense. One copy will be destined for the UB archive. The report must also be uploaded in pdf format to the course Virtual Campus within the deadline indicated by the coordinator. All documentation delivered after the dates indicated will not be taken into consideration except in exceptional cases for duly justified reasons.

7.7. Tutor's report

Before the public defense, the academic tutor of each project must issue a confidential written report (there is a printed form available) evaluating in a non-quantitative way the development of the work and the skills acquired by the student. This report must indicate whether the work carried out is subject to processes of protection and/or transfer of technology and/or knowledge. This report must also include the authorization, by the tutor, for the presentation and defense of the TFM. The report must be given to the coordinator, who will send it to the members of the court.

7.8. Characteristics of the second oral presentation (public defense of the completed project)

The date of the second exhibition will also be set by the president of each court, in agreement with the coordinator, and will be in the first half of July, in accordance with the current academic calendar.

Prior to the public exhibition, the court must have the following documentation:

- Three paper copies of the research report (one for each member of the court).
- The confidential report of the tutor of the research work with the corresponding authorization. In exceptional and duly motivated cases, the coordinator of the TFM can authorize the defense of a TFM without the authorization of the tutor.
- The file of the final presentation in PDF format, which the student must upload to the course Virtual Campus within 24 hours before the call for presentations of the corresponding itinerary, until the beginning of the same. This presentation will be the same that the student will use.

All TFMs will have to be defended by their authors in a public session, except that the work is subject to processes of protection and/or transfer of technology and/or knowledge. In these cases, by unanimous agreement of the members of the court, the tutor and the student, the defense may take place behind closed doors. The members of the court have the obligation to maintain secrecy and absolute confidentiality about the content of these projects, signing a commitment of confidentiality for the period of time necessary to carry out the protection. The signed confidentiality commitments must be given to the TFM coordinator before the presentation of the work, and a copy will be given to the student and tutors, if they request it.

However, the members of the jury must have access to the full version of the Master's Thesis with all the information and data necessary to judge the interpretations and conclusions of the work.

For the public defense, each student will have a maximum of 20 minutes to present in English the content and main results of the project. With the aim of completing the evaluation of the research work, there will be a round of discussion and questions by the members of the court that will not exceed 10 minutes.

Article 8. Evaluation and qualification

8.1 Evaluating court of the TFM

This court will be different for students who follow a more geological or geophysical route and will be composed of three doctors from the University of Barcelona (UB), the Universitat Autònoma de Barcelona (UAB), or any other participating research entity in the teaching of the master's degree (for example, Institute of Earth Sciences GEO3BCN). In addition to these members, the Master's coordinator will appoint 3 PhD professors who will act as substitutes.

The court will have to assess the feasibility and adequacy of the projects presented in the first oral presentation and, in the accepted projects, evaluate the research and learning results obtained that the student must present in the written report and in the second (final) oral presentation.

The members of the Final Master's Thesis tribunals will not be able to participate in the assessment and grading of the projects/work tutored by them. In these cases, the assessment and qualification will be carried out by the other members of the court.

The assignment of students to one of the two proposed tribunals (geology and geophysics) in each academic year will be carried out by the coordinator based on the proposed research project and the subjects studied by the student in the first semester.

8.2 Evaluation of the TFM proposal (first oral presentation)

Once all the exhibitions of the research projects proposed by the students have been completed, the court will award each of them the qualification of: Pass or Fail.

In the event that the student receives the qualification of Fail, he/she will have 15 days to present in writing a new research project that will be delivered to the president of the court. The court will evaluate the new proposal and award a new rating before the end of February.

The student who does not obtain the qualification of Pass, will not be able to carry out the work and, consequently, will not be able to pass the TFM course.

8.3 Final evaluation of the TFM

After the public defense of all the projects presented, the court will award a global numerical rating to the TFM, which will range from 0 to 10. The rating will be based on the court's evaluation of the written report, and the presentation and oral defense of the project. An overall rating of less than 5 will mean that the TFM will not be passed.

To guarantee homogeneity in the TFM evaluation process, rubrics are established, which must be public. Once the assessment has been completed, the president of each court will give the coordinator a copy of each student's completed and signed rubric.

In the event of a claim, if applicable, the master's academic committee may appoint a tribunal to resolve it. The committee will notify the student of the tribunal's decision.

Article 9. Reassessment

Once the final grades have been published, a re-evaluation period will open for those students who: a) have not passed the Final Master's Thesis, and b) have taken all the assessment instruments. This re-evaluation will take place between 10-15 days after the publication of the final grades and will consist of:

- The presentation of a new written report that incorporates the comments, modifications and corrections indicated by the court in the second oral presentation.
- In the event that the court considers it pertinent, by making a new oral presentation in which he/she will defend his/her research project again.

The court will evaluate the new report, and if applicable, the new oral presentation, and will award a new rating before the end of July.

Article 10. Copying, plagiarism and fraudulent procedures

10.1. Copying or plagiarism, total or partial, in the TFM will not be tolerated. Works that show evidence of this will be graded with a 0.

10.2. Copying or plagiarism, as well as the use or cooperation in fraudulent procedures to carry out the TFM, may lead, where appropriate, to disciplinary responsibilities.

10.3. The consequences for the qualification in the case of plagiarism or in the case that a student carries out fraudulent activities in the TFM are included in the Regulations governing the evaluation and qualification of the learning of the University of Barcelona (ub.edu/acad/noracad/avaluacio_2020.pdf).

Article 11. Use of artificial intelligence in the preparation of TFM

Students who use Artificial Intelligence (AI) in their TFM must provide a detailed description of how they have integrated AI in the development of their work. This description must include the AI algorithms or techniques used, as well as the impact of

this technology on the research process and the results obtained or on the editing of the text of the report.

Article 12. Delivery, filing and deposit of the TFM

12.1. In addition to the paper copies, the student must deliver a copy of his or her TFM in digital format (pdf) to the course Virtual Campus on the date indicated for these purposes.

12.2. The intellectual property rights of the TFM belong to the student. Exploitation rights can be shared with the tutors and the public or private entities to which they belong, under the terms and conditions provided for in the regulations of the UB and the current applicable legislation.

12.3. The TFMs that obtain a minimum rating of 8 are incorporated into the institutional repository of the UB. The publication of the TFM in the UB digital repository must have the authorization of the student and the tutor (and external tutor, if applicable).

Final provision

This regulation repeals the previous regulations for the Final Master's Thesis of the Master's in Geology and Geophysics of Reservoirs.

These regulations supersede what is established in the Master's thesis regulations of the Faculty of Earth Sciences, approved by the Academic Committee of the Faculty of Earth Sciences on March 13, 2023.

This regulation comes into force in the 2024-25 academic year.