

Degree programme	Type	Course
Biological and Environmental Engineering	TFE	2

Contact lecturer

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Prerequisites

To have passed all the subjects of the first year of the master's degree.

Group languages

You can consult this information at the [end](#) of the document.

Objectives

On the one hand, the final master's project (TFM) allows students to deepen their study of a topic of interest within the scope of the master's degree. On the other hand, it allows to integrate fundamental knowledge, skills and abilities, acquired in the master's courses, as well as facilitate the development of relevant skills. It also allows consolidating the ability to plan tasks, solve problems, analyze and interpret results, and defend proposals through efficient and unambiguous communication.

Therefore, the objective of the TFM is for students to learn first-hand the method of preparing research, development and innovation (R+D+i) and/or engineering projects. To do this, they must participate in the design, implementation and presentation of results that can be research or industrial application, but always within the scope of the master's degree. Thus, the TFM may be carried out in a company, in a research group belonging to a university department, in a public or private research center or in a public, national or foreign institution.

Learning outcomes

- CA07 (Integrate knowledge and deal with the complexity of formulating judgments based on information that, due to being incomplete or limited, requires consideration of the social and ethical responsibilities associated to the application of one's knowledge and judgements.) Integrate knowledge and deal with the complexity of formulating judgments based on information that, due to being incomplete or limited, requires consideration of the social and ethical responsibilities associated to the application of one's knowledge and judgements.
- CA25 (Compile, adapt and/or combine concepts, strategies, methodologies and/or instruments in a consistent, systematic and integrated manner in order to address the goals of the project and problems raised therein.) Compile, adapt and/or combine concepts, strategies, methodologies and/or instruments in a consistent, systematic and integrated manner in order to address the goals of the project and problems raised therein.
- KA17 (Recognise the ethical, economic, legal, gender and/or environmental dimensions of a project, process or product in biological engineering and environmental engineering.) Recognise the ethical, economic, legal, gender and/or environmental dimensions of a project, process or product in biological engineering and environmental engineering.
- SA01 (Search, compare, critically analyse and summarise information obtained from databases and other sources to solve complex problems in one's specialist area.) Search, compare, critically analyse

and summarise information obtained from databases and other sources to solve complex problems in one's specialist area.

- SA03 (Plan the different activities related to the resolution of tasks assigned as part of a work group, while appropriately managing time and resources.) Plan the different activities related to the resolution of tasks assigned as part of a work group, while appropriately managing time and resources.
- SA06 (Deduce the learning skills required to continue one's training in a self-managed or autonomous manner.) Deduce the learning skills required to continue one's training in a self-managed or autonomous manner.
- SA09 (Use the most adequate IT instruments to complement knowledge in the field of biological engineering and environmental engineering.) Use the most adequate IT instruments to complement knowledge in the field of biological engineering and environmental engineering.
- SA26 (Document, justify and defend the conclusions, knowledge and final reasoning that support a proposed project before specialised and non-specialised audiences in a clear and unambiguous way, via oral and written communication, demonstrating a capacity for synthesis and presentation.) Document, justify and defend the conclusions, knowledge and final reasoning that support a proposed project before specialised and non-specialised audiences in a clear and unambiguous way, via oral and written communication, demonstrating a capacity for synthesis and presentation.

Contents

The contents associated with the TFM will depend on the specific theme and scope. There are two basic types of projects (always within the scope of the master's degree): 1) R+D+i projects; 2) Engineering Projects.

Learning activities and methodology

Title	Hours	ECTS	Learning outcomes
Follow-up of the master's thesis	73	2.92	CA07, CA25, KA17, SA01, SA03, SA06, SA09, SA26
Doing the tasks related to the project	365	14.6	CA07, CA25, KA17, SA01, SA03, SA06, SA09, SA26
Review of written memory and of the presentation	12	0.48	CA07, CA25, KA17, SA01, SA03, SA06, SA09, SA26

Based on the type of project (R+D+i and/or engineering project) and with the advice of the person advising or tutoring the TFM, each student develops their own master's thesis individually. In this tutoring or advice process, the original design is modified and the rhythms and phases of the work are established until the conclusion.

As a final result, the students must write a document according to the type of project and carry out a public defense in front of an evaluation committee in front of which they must present the development and conclusions of all the work. The format of the TFM document will be determined by the type of TFM:

- Scientific Journal Format: For those TFMs that intend to corroborate one or more hypotheses by obtaining certain results (experimental or modeling), achieved through various quantitative and/or qualitative data collection methodologies that provide knowledge on topics and areas related to the master's degree. The scientific journal that will be followed as a model is left to the choice of the students and the direction of the TFM work.
- Monograph/engineering project format: If the TFM intends to develop a practical -or innovative- proposal that responds to a need detected in a specific professional sector, the format to be followed must be credible and consistent with the content and form characteristics of its own work area of reference, such as an engineering project. The page limit in this case must be agreed with the direction of the TFM and the coordination of the master's degree.

Annotation: within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continuous assessment activities

Title	Weight	Hours	ECTS	Learning outcomes
Assessment of the presentation and oral discussion	25%	0	0	SA03, SA06, SA09, SA26
Report of the director or directors of the final work of master's degree	25%	0	0	CA07, CA25, KA17, SA01, SA03, SA09
Assessment of the manuscript	50%	0	0	CA07, CA25, KA17, SA01, SA03, SA06, SA09, SA26

For the evaluation of the master's thesis, students must:

- Submit a written report of the work carried out according to the established model and adapted to the type of work (scientific article, engineering project or innovation and development project).
- Carry out a public defense of the work before the evaluation commission. The qualification criteria are based on: 1) evaluation rubrics completed by the evaluation committee, which include aspects of the quality of the written report, presentation and discussion, and 2) the assessment presented by the direction of the work of the work, according to the rubric established for this purpose. These rubrics are available in the master's Moodle.

Grades range from 0 to 10. If any form of plagiarism or similar malpractice is detected early, the director of the work and the student will be informed and their defense is prevented. The evaluation commission is made up of three professors, preferably doctors from the Department of Chemical, Biological and Environmental Engineering of the UAB, and the replacement of a member by an external expert may be required when the coordinator deems it necessary.

It is mandatory for the student to have a minimum of 3 tutorials with the academic tutor, in case the TFM is done in a company, or with the director in case the TFM is done at the DEQBA. It is also mandatory for the student to have the approval of the academic tutor, in case of TFM in a company, or the director, in case of TFM at the DEQBA, in order to be able to present the report.

The oral presentation of the work is limited to a maximum of 15 minutes, after which the panel can ask questions about the master's thesis that demonstrate that the student has acquired the skills of their particular field of specialization. It can be presented in Catalan, Spanish or English.

The weighting of the final grade has the following distribution:

- Evaluation of the written report by the committee -20-60%
- Evaluation of the presentation and oral discussion with the members of the committee- 20-60%
- Report of the director or directors of the TFM - 20-60%

The evaluation panel considers, among other aspects:

- 1) Memory: Appropriate use of language. The document can be written in English, Catalan or Spanish. The choice of language is not a criterion for the evaluation and the court will only evaluate the correct and appropriate use of the chosen language. Format: if you correctly follow the relevant guidelines according to the typology of the TFM. Conciseness and ability to analyze and interpret the results or work products.
- 2) Oral defense: The student's ability to communicate. Conciseness and compliance with the established time. The quality of the presentation. The ability to answer questions asked by the court.

Honors. Awarding a grade with honors is the decision of the teaching staff responsible for the subject and the teaching staff that evaluates the students. The UAB regulations indicate that the MH may only be awarded to students who have obtained a final grade equal to or greater than 9.00. Up to 5% MH of the total number of students enrolled can be awarded. In the event that there are more students with a final grade greater than 9 than the percentage or fraction stipulated above, the MH will be awarded to the highest grade, once all the students enrolled in the module have defended, regardless of the group they belong to. and the date of the defense.

Bibliography

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- Caicedo, Claudia, ¿Cómo elaborar un trabajo final de máster?, barcelona : Editorial UOC, 2016.
- Dunleavy, Patrick, Authoring a PhD : how to plan, draft, write, and finish a doctoral thesis or dissertation, Houndmills : Palgrave Macmillan, 2003.
- León, Orfelio G., Cómo redactar textos científicos y seguir las normas APA 6.^a : para los trabajos de fin de Grado, de fin de Máster tesis doctorales y artículos, 4a ed., Madrid : Garceta, 2016.
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- Rigo, Antònia, Cómo presentar una tesis y trabajos de investigación, Vic : Eumo; Barcelona : Octaedro, 2002.
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https://www.aqu.cat/doc/doc_18533565_1.pdf
- Bourne PE. Ten simple rules for making good oral presentations. PLoS Comput Biol. 2007 Apr 27;3(4):e77. doi: 10.1371/journal.pcbi.0030077. PMID: 17500596; PMCID: PMC1857815.

Software

Text editing software.

Presentation making software.

Depending on the type or theme of the TFM, the use of specific software may be necessary.

Course groups and languages

The information provided is provisional until November 30. After this date, you will be able to consult the language of each group through this [link](#). To access the information, you will need to enter the course CODE

Type of teaching	Group	Language	Semester	Shift
(TFMm) Treball de fi de màster	1	Unknown	Undefined	morning-mixed