

## Bachelor's Degree Final Project

Code: 100108  
ECTS Credits: 12

2024/2025

Degree	Type	Year
2500149 Mathematics	OB	4

### Contact

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### Teaching groups languages

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

### Prerequisites

Having passed 2/3 of the credits of the degree and all first-year courses. It is recommended to take this course in the last year.

### Objectives and Contextualisation

The Final Degree Project (TFG) is an independent and individual project that is submitted as a written dissertation and presented in front of an examining panel. This is the only compulsory course in the fourth year. Its main objective is to demonstrate the maturity necessary to obtain the BSc in Mathematics.

### Competences

- Actively demonstrate high concern for quality when defending or presenting the conclusions of one's work.
- Demonstrate a high capacity for abstraction.
- Distinguish, when faced with a problem or situation, what is substantial from what is purely chance or circumstantial.
- Effectively use bibliographies and electronic resources to obtain information.
- Formulate hypotheses and devise strategies to confirm or reject them.
- Generate innovative and competitive proposals for research and professional activities.
- Identify the essential ideas of the demonstrations of certain basic theorems and know how to adapt them to obtain other results.
- Students must be capable of collecting and interpreting relevant data (usually within their area of study) in order to make statements that reflect social, scientific or ethical relevant issues.
- Students must be capable of communicating information, ideas, problems and solutions to both specialised and non-specialised audiences.
- Students must develop the necessary learning skills to undertake further training with a high degree of autonomy.

### Learning Outcomes

1. Actively demonstrate high concern for quality when defending or presenting the conclusions of one's work.
2. Be able to transmit mathematical knowledge, procedures, results and ideas.
3. Demonstrate a high capacity for abstraction.
4. Distinguish, when faced with a problem or situation, what is substantial from what is purely chance or circumstantial.
5. Effectively use bibliographies and electronic resources to obtain information.
6. Explain the explicit or implicit deontological code in your area of knowledge.
7. Formulate hypotheses and devise strategies to confirm or reject them.
8. Have developed the necessary learning skills to do postgraduate studies in a highly autonomous manner.
9. Identify the essential ideas of the demonstrations of certain basic theorems and know how to adapt them to obtain other results.
10. Students must be capable of collecting and interpreting relevant data (usually within their area of study) in order to make statements that reflect social, scientific or ethical relevant issues.
11. Students must be capable of communicating information, ideas, problems and solutions to both specialised and non-specialised audiences.
12. Students must develop the necessary learning skills to undertake further training with a high degree of autonomy.

## Content

The TFG is a theoretical or theoretical-practical research on a mathematical subject. If the subject also has a non-mathematical component (for example, historical or applications), the mathematical part must demonstrate that the competences and the learning outcomes of the course are obtained.

The student can choose the topic of the TFG from the document of proposals and thematic lines that will be available on the virtual campus. There is also the possibility of agreeing on a topic with a professor in the department, or also with staff from other departments or external. In these latter cases, the proposal must be approved by the degree coordinator and an administrative tutor from the department will be assigned (it can be the coordinator). The administrative tutoring and the completion of the TFG in external entities are regulated by Sections 1 and 4 of the [Guia del Treball Final de Grau de la Facultat de Ciències](#).

Although the TFG is not required or expected to contain original results, it is important that there is a critical approach to the relevant bibliography and that the student's independence is shown in understanding, interpreting and explaining the contents of the TFG. In this sense, the dissertation must have an introduction that explains the motivation of the work and makes clear what the student's contributions have been (for example: additional calculations, own examples, new point of view and, if the case, new applications or original results).

The dissertation must reflect the sources faithfully, both in textual quotations and in paraphrases and bibliographic references. The plagiarism of part or all of the work will result in a grade of zero and in addition the Faculty of Sciences may take, if it deems it appropriate, the measures provided for in these cases. Abusive paraphrasing, even if the source is mentioned, is also considered a form of plagiarism. More information can be found in Section 10 of the [Guia del Treball Final de Grau de la Facultat de Ciències](#). On the other hand, the help given by other people to the student must be included in an acknowledgments section.

It is recommended that the length of the dissertation be between 5000 and 7000 words (not counting references, titles or formulas). This corresponds to around 30 pages with the margins of the LaTeX book or article class and 12pt font. If it is considered necessary to add complementary material (code, preliminary material), it is recommended to use appendices at the end of the document.

The work and the presentation can be done in Catalan, Spanish or English.

## Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Explanatory meeting	1	0.04	10, 11
Tutorials	10	0.4	11
Type: Autonomous			
Autonomous work development	288	11.52	10, 12

Students can contact potential tutors as soon as they know they will be taking the subject, although it is recommended to wait for the publication of the list of proposals and thematic lines.

At the beginning of the year, there will be a compulsory explanatory meeting to explain how the TFG works.

Tutoring: consultations and monitoring of work (preferably face-to-face activity). This follow-up includes the contents, the written report and the presentation of the work. The minimum number of academic tutoring sessions with the student established by the [Guia del Treball Final de Grau de la Facultat de Ciències](#) is four. The tutor can increase this number if he/she considers it appropriate and establish a calendar of meetings. The TFG is a personal work of the student and the intervention of the tutor must be limited.

Independent work: it is the main part of the TFG (non-presential activity).

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

### Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Presentation and defense	1	1	0.04	1, 2, 5, 7, 11
Submission of dissertation	0	0	0	3, 4, 5, 6, 8, 9, 10, 12

The evaluation of the TFG is carried out by the tutor and two external evaluators (members of the department), according to the general criteria of correctness, originality, independence, difficulty of the subject, ability to communicate it in a proper and competent way, and ability to show a global understanding beyond the dissertation. In any case, quality will be prioritized over quantity.. This assessment combines:

- The evaluation by the tutor of the work done by the student (40%).
- The evaluation by the two external evaluators of the written report (30%).
- The evaluation by the two external evaluators of the oral presentation and the answers given in the question round (30%).

In case of a large discrepancy between the different assessments, the work will be reassessed together between the tutor, the evaluators and the subject coordinator.

Confirmation of call: the student must enter the provisional title of the work, the name of the tutor and the call to

which he/she wishes to submit in a task on the virtual campus. The student must also upload the commitment document for the completion of the TFG.

Submission: the student must upload the dissertation to the virtual campus and send it by email to the two external evaluators, CCing the tutor and the course coordinator. The student will only provide a hard copy if an evaluator requests it. Failure to deliver within the established deadlines will mean that the TFG cannot be presented and the grade obtained will be: NOT EVALUABLE.

Oral presentation: the student must make a 15-minute presentation in front of the assessors (the tutor is not part of this panel). The assessors will then ask questions for approximately 15 minutes. The first part will consist of questions about fundamental mathematical concepts in the work. If the student is unable to answer these questions, the evaluators will inform the tutor and the subject coordinator to jointly review the evaluation of the work.

The degree or subject coordinator will appoint a committee to assign honors, if applicable, based on the proposals of the tutors and the courts. If the committee deems it appropriate, it may request an additional presentation from the student.

Calendar according to call:

	February	June	September
Confirmation	11/12/2024	15/02/2025	15/02/2025
Submissions	29/01/2025	25/06/2025	23/07/2025

The presentations will be during the first fortnight of July for the June call, during the first fortnight of September for the September call, and during the first fortnight of February for the extraordinary February call. Specific dates will be published on the virtual campus.

There is the possibility of revision, which must be requested on the day the note is made public. The revision consists of the ratification of the tutor's evaluation and of the presentation, and the revision by the coordinator of the dissertation. If the subject coordinator detects any discrepancy, he will ask for the re-evaluation of the written report and a new session of questions by a new evaluator. The level of demand of the question session will be adapted to the fact that the student has acquired experience in defending the work and has had more time to prepare.

## **Bibliography**

Each TFG has its own bibliography.

## **Software**

If necessary, each TFG has its own software.

## Language list

Information on the teaching languages can be checked on the CONTENTS section of the guide.

PROVISIONAL