Universitat Autònoma de Barcelona

2023/2024

Bachelor's Degree Final Project

Code: 100108
ECTS Credits: 12

Degree	Type	Year	Semester
2500149 Mathematics	OB	4	A

Contact

Name: Juan Eugenio Mateu Bennassar

Email: joan.mateu@uab.cat

Teaching groups languages

You can check it through this link. To consult the language you will need to enter the CODE of the subject. Please note that this information is provisional until 30 November 2023.

Prerequisites

The student can only take this course if he has successfully completed 160 ECTS of the degree and all the courdse of the first year, although it is recommended to do the TFG during the last year of the degree.

Objectives and Contextualisation

The TFG is conceived as an autonomous work of the student, it can be done individually or in groups, depending on the chosen subject. The students will present their work individualy in writing and will present it in front of an evaluation committee.

This is the only compulsory subject of the fourth year of the Degree in Mathematics. The students will have to demonstrate that they have reached the maturity necessary to obtain the Degree in Mathematical Sciences.

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

GENERAL ASPECTS:

The work will be mostly academic. It consists of a theoretical-practical research on a fixed subject. THE STUDENT IS NOT EXPECTED TO OBTAIN NEW RESULTS.

The work is chosen by the student among those proposed by the section or the Faculty . A willing student can also proposed a subject within one of the lines of interest offerted by the professors of the Department of Mathematics or other Departments of the University that have been approved the coordinator of the degree. In the case of interdisciplinary work proposed by professors from other Departments, there will be a tutor from the Department of Mathematics, designated by the coordinator of the degree, who will take care of the minimum necessary content, competences and learning outcomes of the Mathematics degree.

A topic themes listings and pre-enrollment instructions are available on the website of the Degree.

Generally the work will be individual. Group work is admitted in the case of interdisciplinary subjects and with a clear separation of the tasks of each person in the group. The exhibition will be organized so that everyone exposes a part and / or questions in the committee. The groups are limited to two people.

The extension may be variable but it is recommended not to exceed thirty pages. The work can be presented either in Catalan, Spanish or English.

Presentation aspects:

The usual in a mathematical article. Non-original content must have been clearly referenced. In the acknowledgments, all the disinterested aid received by the author of the work will be recognized. Te first page will include the title, author and tutor, place and dates where the work is carried out.

Tutoring:

Students enrolled in TFG will have academic tutorials and administrative tutorials, if necessarie.

Academic tutoring will be that carried out by any teacher or researcher linked to the UAB or any person from an external entity with the degree of doctor or equivalent level of experience. Predoctoral PDI can not be an individual academic tutor, but can share tutorial. The TFGs can be co-tutored (academically) by a maximum of 2 people. Academic tutoring will consist of:
• Know and apply the teaching guide of the subject,
• Supervise and advise students during the TFG elaboration process, following the guidelines indicated in the teaching guide of the subject.
• Evaluate the student in the achievement of competences related to the TFG following the guidelines and guidelines indicated in the teaching guide of the subject.

The administrative tutor may be any UAB professor when the TFG is carried out in entities external to the UAB. The student will have an academic tutor in the external institution, as will be stated in the agreement to sign between the external entity and the UAB. The administrative tutors will be responsible for the acceptance of the subject of the work beforeenrolling the same, validating objectives and methodologies proposed based on the criteria of the degree of Mathematics, and will serve as a contact person for any purely administrative purposes, both for the student as well as the entity. The administrative tutor should ideally belong to the area of knowledge proposed in the TFG.

In the case of a TFG carried out in an external entity but within a scientific collaboration between a UAB research group, the external entity will still need to sign an agreement, but the administrative tutor may exercise as an academic co-tutor.

Methodology

At the begining of the course a meeting with the students will be organized, face to face or virtual (depending on the conditions of the pandenic) to explain the operation of the TFG.

Tutorials. Consultations and follow-up of the work, either idividual or group face-to-face activity in the case of group work. The students will have a maximum of one hour of weekly tutorials including monitoring by the tutor and not less that 5 hours in total. It is a personal work of the student and the intervention of the tutor must be limited.

Autonomus work is the main part of the TFG.

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.

Activities

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

Assessment

The evaluation will take place the second week of July and the first week of September. The students will be informed sufficient time in advance (via Campus Virtual) of the day, time and place where the evaluation by the committee will take place¡. The TFG has to be turned over during the last week of June (or of July for those that present in September). The exact date will be published on the Virtual Campus.
It is the responsibility of the students to send a printed copy (in hand) and in pdf format to each member of the committee and a copy in pdf (via Campus Virtual) to the coordinator of the TFGs. The non-compliance of the established deadlines will mean that the defense of the TFG can not be carried out and the qualification obtained will be: NOT AVALUABLE.
The evaluation is carried out in three phases:

In the first place, the tutor evaluates the work done by his/her student and grants between 0 and 5 points and authorizes that the student to continue the process.
Secondly, two external evaluators (members of the department) evaluate the written memory, and give it between 0 and 2 points.
In third place, the student does an exposition of 15 min followed by a 10 minute question session and two evaluators (the tutor can NOT be part of the committee). The quality of the answers given and the exposition grat between 0 and 3 points.
The total is therefore 5 + 2 + 3 = 10 points.

The coordinator of the degree will appoint a commission to assign the honours quaification, if applicable, based on the recomendations of the evaluation committees. If the commission deems it appropriate, it may request an additional presentation to the student.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Entrega del trabajo escrito	0	0	0	3, 4, 6, 8, 9, 12, 10, 5
Presentation and defense	1	1	0.04	1, 7, 11, 2, 5

Bibliography

It will be provided for each specific job.
Instructions on the Website of the Degree

Software

It depends on the work that each student does.