

Degree	Type	Year	Semester
4313794 Biochemistry, Molecular Biology and Biomedicine	OB	0	2

Contact

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Use of languages

Principal working language: catalan (cat)

Teachers

Jaume Farrés Vicén

Francisco Blanco Vaca

Prerequisites

Graduates in Biochemistry, Biology, Biomedical Sciences, Genetics, Microbiology, Chemistry, Computer Science, Physics, Veterinary Medicine or Pharmacy.

English proficiency is required to read and understand scientific papers that will serve as basis for the preparation of the final project.

Objectives and Contextualisation

The main objective of the Final Master is to learn firsthand the scientific method. Thus, the students should participate in the design, implementation and presentation of the results of a research project or work placement.

The Master Thesis involves the preparation of a report, and the public defense of a practical work on a topic related to biochemistry, molecular biology or biomedicine, which previously have been developed in the module of the professional and research practices of the corresponding specialty. The main objective is for the student to integrate a set of skills and competencies acquired during the program.

In the Master Thesis the students must demonstrate:

- a) They have acquired the skills trained in the master
- b) Their reflective and critical capacity
- c) Its ability to raise a research problem, design a project to find answers, to critically analyze the results and conclusions based and proven.
- d) Ability to present and defend the results.

Skills

- Analyse and correctly interpret the molecular mechanisms operating in living beings and identify their applications.

- Analyse research results to obtain new biotechnological or biomedical products to be transferred to society.
- Communicate and justify conclusions clearly and unambiguously to both specialist and non-specialist audiences.
- Conceive, design, develop and synthesise scientific and/or biotechnological projects within biochemistry, molecular biology or biomedicine.
- Develop critical reasoning within the subject area and in relation to the scientific or business context.
- Identify and propose scientific solutions to problems in molecular-level biological research and show understanding of the biochemical complexity of living beings.
- Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
- Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
- Use acquired knowledge as a basis for originality in the application of ideas, often in a research context.
- Use and manage bibliography and IT resources related to biochemistry, molecular biology or biomedicine.
- Use scientific terminology to account for research results and present these orally and in writing.
- Work individually and in teams in a multidisciplinary context.

Learning outcomes

1. Analyse research results to obtain new biotechnological or biomedical products to be transferred to society.
2. Communicate and justify conclusions clearly and unambiguously to both specialist and non-specialist audiences.
3. Design and conduct a research project in the field of biochemistry, molecular biology or biomedicine.
4. Develop critical reasoning within the subject area and in relation to the scientific or business context.
5. Identify molecular mechanisms responsible for diseases.
6. Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
7. Propose innovative projects in biochemistry, molecular biology or biomedicine, starting from a holistic perspective on the knowledge acquired.
8. Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
9. Use acquired knowledge as a basis for originality in the application of ideas, often in a research context.
10. Use and manage bibliography and IT resources related to biochemistry, molecular biology or biomedicine.
11. Use scientific terminology to account for research results and present these orally and in writing.
12. Work individually and in teams in a multidisciplinary context.

Content

The written report of the Master Thesis will have the following characteristics:

1. Structure: While accepting different types of Master report according to the conducted research, we believe that their content should have the following chapters:
 - Title and signatures of the student and tutor(s)
 - Summary (maximum 200 words)
 - List of Abbreviations
 - Introduction
 - Objectives
 - Material and Methods

- Results
- Discussion
- Conclusions
- Bibliography

2. Extension: The report must not exceed 15,000 words, including all sections, even the bibliography. The number of figures is not limited but we advise that the total report once printed does not exceed the equivalent of 30 pages.

3. Language: You can defend it in Catalan, Spanish or English.

The defense of the Master Thesis should consist of a brief presentation (between 15 and 20 minutes) to an Evaluation Committee, formed by three doctors from the Master's. The members of the Evaluation Committee may ask questions and discuss issues with students both from the oral defense, as well as from the written report. This oral defense will be public, and other Master's teaching staff in the room may also ask additional questions related to the students' work.

The Master's Thesis can be presented in Catalan, Spanish or English.

Methodology

Activities

Title	Hours	ECTS	Learning outcomes
Type: Supervised			
Tutorials	25	1	1, 5, 4, 3, 7, 8, 2, 6, 9, 11
Type: Autonomous			
Development master thesis	60	2.4	1, 5, 4, 3, 7, 8, 2, 6, 9, 12, 10, 11
Oral Presentation and results discussion	14	0.56	1, 4, 3, 7, 8, 2, 6, 11
Reading scientific articles	50	2	6, 9, 12, 10
Study	75	3	1, 4, 3, 7, 8, 6, 9, 12

Evaluation

The evaluation committee will evaluate the master thesis according to the final report and the oral defense. Each mark will count 50% of the total.

For both specialties, students may choose to perform the oral defense of the presentations during the last half of July or the first of September.

To be evaluated, the student must deliver to the Coordinator of the corresponding specialty the final report, before the established deadline. In addition, the student will have to make the oral presentation. If any of these requirements is not fulfilled, then the final grade will be "No evaluable".

If plagiarism is detected in any of the works submitted, the student will fail the whole module.

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Document Master Thesis	50%	0	0	1, 5, 4, 3, 7, 8, 2, 6, 9, 12, 10, 11
Oral Presentation of Masther Thesis	50%	1	0.04	1, 5, 4, 3, 7, 8, 2, 6, 9, 12, 10, 11

Bibliography

The bibliography will be specific for each project.