

Professional Work Experience and Research in Structural Biochemistry and Molecular Biology**2014/2015**

Code: 42898

ECTS Credits: 9

Degree	Type	Year	Semester
4313794 Bioquímica, Biología Molecular i Biomedicina	OT	0	A

Contact

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Use of languages

Principal working language: català (cat)

Some groups entirely in English: No

Some groups entirely in Catalan: Yes

Some groups entirely in Spanish: No

Prerequisites

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

Good level of Catalan, Spanish or English.

Objectives and Contextualisation

The students should learn how to perform in a professional setting, and to develop a proactive and entrepreneurial attitude in the field of Structural Biochemistry and Molecular Biology.

Skills

- 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 contents in biochemistry, molecular biology, biotechnology and biomedicine from a molecular perspective.
- 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 and apply knowledge of molecular mechanisms within a real R+D+I project or a production process at a public or private organisation.
5. Develop critical reasoning within the subject area and in relation to the scientific or business context.
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

Practice internship in a public research center or in a private industry, while performing some tasks typical of the field of Biochemistry, Molecular Biology or Biomedicine, emphasizing basic and applied aspects of Structural Biochemistry and Molecular Biology.

Methodology

The practice internship will be carried out according to a preset training project. Reading of selected scientific articles. Tutorships. Presentation and discussion of results. Writing and oral presentation of a final report on the activities performed during the practice internship.

It will include 200 hours of supervised practice work and 25 hours of independent self-directed work.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Supervised			
Practice internship	200	8	1, 4, 5, 3, 7, 6, 8, 2, 9, 12, 10, 11
Type: Autonomous			
Final report writing	24	0.96	1, 4, 5, 3, 7, 6, 8, 2, 9, 12, 10, 11

Evaluation

The final report will have the following requirements:

1. Layout: Different formats may be accepted depending on the type of work done. However, the report should contain the following sections:

- Abstract (under 200 words)
- Abbreviations list
- Introduction
- Objectives
- Material and Methods
- Results
- Discussion
- Conclusions
- Bibliography

2. Length: The final report should contain less than 15,000 words, including all sections, bibliography as well.

The number of figures is not fixed but it is recommended that the total length including figures be under 30 printed pages.

3. Language: It can be written in Catalan, Spanish or English.

The oral presentation will consist of explaining, before the Examining Committee (3 professor doctors chosen among the Master faculty), the work presented in the final report, in a summarized way (for about 15 to 20 minutes). The members of the Examining Committee will be entitled to ask questions and discuss with the student any items that they may find relevant from his/her oral presentation or written report. The oral presentation will be held in an open session. If any other attending professor from the Master faculty wishes to pose any question about the student's work he will be able to do so.

The Master thesis defense can be done in Catalan, Spanish or English.

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Assessment of final report	35%	0	0	1, 4, 5, 3, 7, 6, 8, 2, 9, 12, 10, 11
Evaluation report issued by the internship supervisor or the academic tutor.	30%	0	0	1, 4, 5, 3, 7, 6, 8, 2, 9, 12, 10, 11
Oral presentation	35%	1	0.04	1, 5, 6, 8, 2, 12, 11

Bibliography

Bibliography will include that of each Master module taken by the student plus that specific of the topic chosen for the professional and research practice internship.