

**Professional Practice**

Code: 42400  
ECTS Credits: 15

Degree	Type	Year	Semester
4313473 Bioinformatics	OB	0	2

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

**Contact**

Name: Raquel Egea Sánchez

Email: Raquel.Egea@uab.cat

**Use of Languages**

Principal working language: english (eng)

**Other comments on languages**

Language may change depending on the company/institution where the practice is performed

**Teachers**

Antoni Barbadilla Prados

Alfredo Ruíz Panadero

Jean-Didier Pierre Marechal

Marta Coronado Zamora

Angel González Wong

Santiago Marco Sola

Jaime Martínez Urtaza

Laura Masgrau Fontanet

Alex Peralvarez Marin

Sònia Casillas Viladerrams

Raquel Egea Sánchez

Xavier Daura Ribera

**Prerequisites**

To carry out this module it is necessary to have passed previously both compulsory modules (Programming in Bioinformatics and Core Bioinformatics) and one of the optative modules.

It is recommended you have a Level B2 of English or equivalent.

**Objectives and Contextualisation**

The main objective of these practices is to promote the students' interaction with the research and professional environments around them.

## Competences

- Apply research results to obtain new good and services valuating their industrial and commercial viability to transfer them to society.
- Conceive, design and carry out scientific, technical or industrial projects in biocomputing and be able to interpret and extract knowledge from them.
- Design and apply scientific methodology in resolving problems.
- Identify the biocomputing needs of research centres and companies in the biotechnology and biomedicine sectors.
- Possess and understand knowledge that provides a basis or opportunity for originality in the development and/or application of ideas, often in a research context.
- Propose biocomputing solutions for problems deriving from omic research.
- Propose innovative and creative solutions in the field of study
- Students should be able to integrate knowledge and face the complexity of making judgements based on information that may be incomplete or limited and includes reflections on the social and ethical responsibilities associated with the application of their knowledge and judgements
- Students should know how to apply the knowledge they have acquired and their capacity for problem solving in new or little known fields within wider (or multidisciplinary) contexts related to the area of study
- Students should know how to communicate their conclusions, knowledge and final reasoning that they hold in front of specialist and non-specialist audiences clearly and unambiguously
- Use and manage bibliographical information and computer resources in the area of study
- Work individually and as part of a team in an international and multidisciplinary context.

## Learning Outcomes

1. Analyze bioinformatics cases and propose innovative solutions.
2. Apply knowledge and skills acquired in genomics, proteomics and computation to potential technological research or business projects based on biocomputing.
3. Apply research results to obtain new good and services valuating their industrial and commercial viability to transfer them to society.
4. Design and apply scientific methodology in resolving problems.
5. Possess and understand knowledge that provides a basis or opportunity for originality in the development and/or application of ideas, often in a research context.
6. Propose business projects in the area of biocomputing from an integrated view of R&D processes.
7. Propose innovative and creative solutions in the field of study
8. Select critically and apply in each case, appropriate bioinformatics tools to the problem.
9. Students should be able to integrate knowledge and face the complexity of making judgements based on information that may be incomplete or limited and includes reflections on the social and ethical responsibilities associated with the application of their knowledge and judgements
10. Students should know how to apply the knowledge they have acquired and their capacity for problem solving in new or little known fields within wider (or multidisciplinary) contexts related to the area of study
11. Students should know how to communicate their conclusions, knowledge and final reasoning that they hold in front of specialist and non-specialist audiences clearly and unambiguously
12. Use and manage bibliographical information and computer resources in the area of study
13. Use clear, concise communication to assess and guide the interpretation of data for resolving problems in the biomedical field.
14. Work individually and as part of a team in an international and multidisciplinary context.

## Content

During the internship, the student will be closely monitored by the research tutor in the company/research center where he/she is receiving the practical training.

In this module, the student will have the opportunity to collaborate in multidisciplinary research projects, applying all the knowledge obtained throughout the course, and gaining professional experience.

In the professional practice module there are also planned some visits to research centres and institutions working in the field of bioinformatics. The aim of these visits is to show to the students the research and professional environments around bioinformatics and some of the job positions which they will be able to apply for once they have finished the MSc in Bioinformatics.

\*Unless the requirements enforced by the health authorities demand a prioritization or reduction of these contents. *Visits will take place if circumstances allow for it.*

## Methodology

The Professional Practice is a mandatory module that involves 365 hours of student work within a company, a research group or a research department of the UAB. The student may choose to do the internship in a research center, if he/she is planning in the future to engage in basic research, or to make stays in private companies or hospitals to develop the career in applied fields.

During the first semester, the student must look for a company or a research group where he/she could be admitted for a practical training. To help the students in this task, the Master Manager will give a list with companies and institutions offering positions for the MSc in Bioinformatics students. The Master Manager can help the student to contact the responsible person in the company or institution to arrange an interview, but, previously, the student should notify the Master Manager his/her preferences in the offered list.

It is the student's responsibility to find the company or research group where he/she will do the professional practice. Once found, he/she must communicate it to the Master Manager and fill the required form to elaborate an agreement between the UAB and the institution. The module coordinator must assign an academic tutor who ensures the correct development of the student's internship. Once the form has been completed and duly signed, the student will hand in one copy to the Academic Management office of the Faculty of Biosciences.

The student must deliver the required paperwork to the Academic Management office at least 1 month before the beginning of the internship. After that, the Academic Management staff will get in touch with both the student and the responsible person at the company/institution to have the final agreement signed.

\*The proposed teaching methodology may experience some modifications depending on the restrictions to face-to-face activities enforced by health authorities.

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: Supervised			
Practical training	365	14.6	1, 2, 3, 13, 4, 6, 7, 9, 10, 11, 8, 5, 14, 12

## Assessment

The Professional Practice Module will be evaluated using a follow-up and evaluation report, written by the project supervisor at the institution/company (70%) and with the grading of the student's practice report (30%).

The student must ensure that the module coordinator receives both documents, practice report and tutor's evaluation report, in the following dates. They can be sent by email, through the portfolio and/or delivered in person.

- Deadline July 5th 2022, in order to complete the Master's Degree in July.

- Deadline September 6th 2022, in order to complete the Master's Degree in September.

\*Student's assessment may experience some modifications depending on the restrictions to face-to-face activities enforced by health authorities.

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Student's practice report	30%	10	0.4	1, 2, 3, 13, 4, 6, 7, 9, 10, 11, 8, 5, 14, 12
Tutor's follow-up and evaluation report	70%	0	0	1, 2, 3, 13, 4, 6, 7, 9, 10, 11, 8, 5, 14, 12

## Bibliography

The student will be responsible for the research and consulting literature required to perform their practice. He/she may be helped by the supervisor.

Recommended lectures

- Nussbeck, S.Y., Weil, P., Menzel, J., Marzec, B., Lorberg, K. & Schwappach, B. 2014 The laboratory notebook in the 21st century: The electronic laboratory notebook would enhance good scientific practice and increase research productivity. EMBO reports 2014 15: 631-4
- Bosch, X. 2010 Safeguarding good scientific practice in Europe. EMBO reports 2010 11: 252-7

## Software

Software will depend on the practices performed by the student.