

| Degree | Type | Year | Semester |
|------------------------|------|------|----------|
| 4313473 Bioinformatics | OB | 0 | 2 |

Contact

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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

Jesus Giraldo Arjonilla

Leonardo Pardo Carrasco

Alfredo Ruíz Panadero

Jean Didier Pie Marechal

Daniel Yero Corona

Mario Cáceres Aguilar

Laura Masgrau Fontanet

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.

Skills

- 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 goods 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 **project supervisor** 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.

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 hold some interviews with the students to find out about their professional interests and their preferences for practical training. With this information, and a list of potential institutions and companies that have previously agreed to provide internship positions for the Bioinformatics MSc students, the Master Manager will offer each student the most suitable positions for their profile and interests. If necessary, the Master Manager can also help the student to contact the responsible person in the company or institution to arrange an interview.

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 external institution. Once the form has been completed and duly signed, the student will hand in one copy to the Master Manager and another one to the Academic Administration (Gestió Acadèmica) of the Faculty of Biosciences.

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

Activities

| Title | Hours | ECTS | Learning outcomes |
|-------------------------|-------|------|-------------------------------|
| Type: Supervised | | | |
| Practical training | 365 | 14.6 | 2, 4, 5, 8, 9, 10, 12, 13, 14 |

Evaluation

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 send both documents, practice report and supervisor's evaluation report, by e-mail to the Master Coordinator in the following dates:

- Deadline **July 8th 2017**, in order to complete the Master's Degree in July.
- Deadline **September 1st 2017**, in order to complete the Master's Degree in September.

Evaluation activities



| Title | Weighting | Hours | ECTS | Learning outcomes |
|--|-----------|-------|------|---|
| Report written by the project supervisor | 70% | 0 | 0 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 |
| Student's practice report | 30% | 10 | 0.4 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 |

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