

Degree	Type	Year	Semester
2501922 Nanoscience and Nanotechnology	OT	4	0

Contact

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Use of languages

Principal working language: catalan (cat)

Some groups entirely in English: No

Some groups entirely in Catalan: Yes

Some groups entirely in Spanish: No

Prerequisites

It is recommended that students who enroll in the external academic practicum have passed the first two years of their degree and have completed 180 credits.

Objectives and Contextualisation

The main objective is that students can put into practice the knowledge acquired in the degree, bringing them closer to the reality of work and facilitate their future entry into the world of employment.

Students can do the academic practicum in: companies, spin-offs, technology centers, technical services and research institutes with whom the Faculty of Sciences has already established a cooperation agreement.

Skills

- Adapt to new situations.
- Apply ethical principles and legislative standards to the field of nanoscience and nanotechnology.
- Apply the concepts, principles, theories and fundamental facts of nanoscience and nanotechnology to solve problems of a quantitative or qualitative nature in the field of nanoscience and nanotechnology.
- Apply the general standards for safety and operations in a laboratory and the specific regulations for the use of chemical and biological instruments, products and materials in consideration of their properties and the risks.
- Be ethically committed.
- Communicate orally and in writing in one's own language.
- Demonstrate knowledge of legislation on intellectual property in the field of knowledge and application of nanoscience and nanotechnology.
- Demonstrate knowledge of the concepts, principles, theories and fundamental facts related with nanoscience and nanotechnology.
- Handle the standard instruments and materials of physical, chemical and biological testing laboratories for the study and analysis of phenomena on a nanoscale.
- Interpret the data obtained by means of experimental measures, including the use of computer tools, identify and understand their meanings in relation to appropriate chemical, physical or biological theories.
- Manage the organisation and planning of tasks.
- Obtain, manage, analyse, synthesise and present information, including the use of digital and computerised media.
- Operate with a certain degree of autonomy.

- Reason in a critical manner
- Recognise the terms used in the fields of physics, chemistry, biology, nanoscience and nanotechnology in the English language and use English effectively in writing and orally in all areas of work.
- Resolve problems and make decisions.
- Show initiative and an enterprising spirit.
- Show motivation for quality.
- Show sensitivity for environmental issues.
- Work correctly with the formulas, chemical equations and magnitudes used in chemistry.
- Work on the synthesis, characterisation and study of the properties of materials on a nanoscale from previously established procedures.

Learning outcomes

1. Adapt to new situations.
2. Apply ethical principles and legal standards to activities in the company during work experience.
3. Be ethically committed.
4. Communicate orally and in writing in ones own language.
5. Correctly apply concepts and theories related with nanoscience and nanotechnology to the professional world
6. Integrate acquired knowledge and skills to solve problems in the professional field.
7. Manage the organisation and planning of tasks.
8. Obtain, manage, analyse, synthesise and present information, including the use of digital and computerised media.
9. Operate with a certain degree of autonomy.
10. Produce a summary in English of the work done.
11. Produce an explanatory report of the results obtained in a professional study in fields related with nanoscience and nanotechnology.
12. Properly handle reagents and chemistry products.
13. Reason in a critical manner
14. Recognise the legal standards for activities in the company during work experience.
15. Resolve problems and make decisions.
16. Show initiative and an enterprising spirit.
17. Show motivation for quality.
18. Show sensitivity for environmental issues.
19. Show the necessary skill to develop synthesis and characterisation studies of materials in the professional field
20. Show the necessary skill to handle the instruments required for professional work in fields related with nanoscience and nanotechnology.
21. Work correctly with the formulas, chemical equations and magnitudes used in chemistry.

Content

Each of the companies or institutions where internships can be done have different areas of work and, therefore, the contents of the external academic practicum will depend on the tasks performed. Before starting, students need to have a work plan agreed with the company or center detailing the tasks and content of the work to be carried out. This work plan must have the approval of the contact professor. The protocol information to follow is in the website of the Faculty (*informació acadèmic-pràctiques externes*) and in the virtual campus.

Methodology

The external academic practicum can be carried out either during term time or during the summer.

Prior to the start of the external academic practicum, the student will meet the contact professor in order to decide on the company or institution chosen for this experience.

The student will be interviewed by the corresponding department, who will assign a tutor to him/her. Both will agree on the work plan, the time period, working hours and overall number of hours. The student will fill out a form with this information together with the details of the company and submit it to the contact professor. Once the professor agrees with this proposal, it will be sent to Academic Management in order to start the agreement process.

After the agreement has been signed, the student may carry out the external academic practicum in the time period agreed, provided he/she is enrolled on the current subject and having contracted the appropriate insurance.

Once the internship has finished, the student will write a report following the published recommendations (maximum 15 pages) to be submitted within the deadlines established.

The company tutor will make an evaluation according to the set model, which will be delivered to the contact professor within the evaluation period.

The student must also give an oral presentation (10 min) of the work performed during this period to the evaluation committee.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
guided activities	40	1.6	1, 5, 6, 12, 3, 8, 14, 21
preparation of the report and the oral presentation	18	0.72	4, 17, 13, 11, 10
Type: Supervised			
supervised activities	61	2.44	1, 5, 2, 19, 20, 7, 6, 12, 3, 18, 13, 14, 15, 21
Type: Autonomous			
self-work	180	7.2	1, 5, 2, 16, 19, 20, 17, 7, 6, 12, 3, 18, 8, 9, 13, 14, 15, 21

Evaluation

External tutor evaluation: 60%. Report evaluation: 20%. Oral presentation: 20%

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
oral presentation	20%	1	0.04	4, 17, 13
tutor evaluation	60%	0	0	1, 5, 2, 16, 19, 20, 17, 7, 6, 12, 3, 18, 8, 9, 13, 14, 15, 21
written report	20%	0	0	4, 8, 13, 11, 10

Bibliography

N/A