

### Work Placement

Code: 44427  
ECTS Credits: 15

| Degree                                                             | Type | Year | Semester |
|--------------------------------------------------------------------|------|------|----------|
| 4313385 Industrial Chemistry and Introduction to Chemical Research | 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

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### Use of Languages

Principal working language: english (eng)

### Prerequisites

No requirements needed

### Objectives and Contextualisation

The student will become familiar with analytical and instrumental techniques structural and / or synthesis techniques and chemical products formulation determination.

### Competences

- Analyse and use the data in autonomous fashion in complex laboratory experiments and relate them with the appropriate chemical, physical or biological theories, and including the use of primary bibliographic sources.
- Be capable of working in a team and adapting to multidisciplinary teams.
- Correctly evaluate the risks and environmental and socio-economic impact associated to special chemical substances.
- Evaluate responsibility in the management of information and knowledge in the field of Industrial Chemistry and Chemical Research.
- Evaluate the human, economic, legal and ethical dimension of professional practice, as well as the environmental implications of one's work.
- Innovate in chemical synthesis and analysis methods related with different areas of Chemistry.
- Operate with advanced instrumentation for chemical evaluation and structural determination.
- Show a respectful attitude to the opinions, values, behaviours and practices of others.
- Students should be able to integrate knowledge and face the complexity of making judgements from information which, being incomplete or limited, include reflections on the social and ethical responsibilities linked to the application of their knowledge and judgements
- Students should know how to apply the knowledge acquired and the capacity to solve problems in new or little-known areas within broader (or multidisciplinary) contexts related to their 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

### Learning Outcomes

1. Analyse experimental results in comparison with the bibliography and drawing conclusions.

2. Be capable of working in a team and adapting to multidisciplinary teams.
3. Evaluate responsibility in the management of information and knowledge in the field of Industrial Chemistry and Chemical Research.
4. Evaluate the human, economic, legal and ethical dimension of professional practice, as well as the environmental implications of one's work.
5. Make correct use of specialised laboratory instruments and materials for the determination of properties and analysis of chemical products.
6. Propose and develop protocols for analysis and chemical synthesis in a professional laboratory.
7. Recognise the risks associated with the chemical system that is the subject of study, as well its environment by adopting the appropriate measures.
8. Show a respectful attitude to the opinions, values, behaviours and practices of others.
9. Students should be able to integrate knowledge and face the complexity of making judgements from information which, being incomplete or limited, include reflections on the social and ethical responsibilities linked to the application of their knowledge and judgements
10. Students should know how to apply the knowledge acquired and the capacity to solve problems in new or little-known areas within broader (or multidisciplinary) contexts related to their 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. Suitable synthetic methods used for the formulation of chemicals

## Content

See methodology section

## Methodology

In the specialty "Advanced chemical research", these practices will be carried out in a research laboratory of the Department of Chemistry of the UAB under the supervision of a professor who will act as tutor or in a Research Institute under the supervision of a member researcher of staff with recognized experience. The supervisors will issue a report at the midterm of the stay that will be used by the Coordination Committee for the evaluation of students. The tasks that will be carried out by the students will be the learning and the practice of analysis and synthesis techniques in a research laboratory.

In the specialty "Chemistry in industry" these practices will be carried out in laboratories of chemical companies. Each student will have a supervisor at the company who will guarantee the progress and quality of their work and issue a report at the midterm of their stay. This report will be used by the Coordination Committee for the evaluation of students. The tasks that the students will be carried out will be the learning and the practice of analysis and synthesis techniques in an industrial chemical laboratory.

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: Directed                      |       |      |                   |
| Tutorials                           | 5     | 0.2  | 1, 8, 11          |
| Type: Supervised                    |       |      |                   |
| Meetings with the thesis supervisor | 15    | 0.6  | 1, 8, 11, 4       |
| Type: Autonomous                    |       |      |                   |

|                                |     |      |                    |
|--------------------------------|-----|------|--------------------|
| Autonomous student research    | 340 | 13.6 | 1, 9, 10, 5        |
| Preparation of mid-term report | 15  | 0.6  | 1, 8, 9, 10, 11, 4 |

## Assessment

The ability to develop a correct activity in the lab will constitute the main source of information to be taken into account for the evaluation of the student. Also the ability to write a mid-term report about the research carried out until the midterm period will be considered.

The final grade will be obtained from:

- 70% final report of the activities carried out by the student provided by the supervisor of the company or research laboratory.
- 30% final report provided by the student.

Both reports will be delivered to the Master's coordinator at the midterm of the training period at the company or research laboratory.

## Assessment Activities

| Title                            | Weighting | Hours | ECTS | Learning Outcomes                     |
|----------------------------------|-----------|-------|------|---------------------------------------|
| Final report provided by student | 30%       | 0     | 0    | 1, 8, 12, 6, 9, 10, 11, 7, 2, 5, 4, 3 |

## Bibliography

It will depend upon the specific student research project

## Software

Chem draw professional