

**COURSE DATA****Data Subject**

<b>Code</b>	42941
<b>Name</b>	Master's final project
<b>Cycle</b>	Master's degree
<b>ECTS Credits</b>	18.0
<b>Academic year</b>	2023 - 2024

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. Period year</b>
2109 - Master's Degree in Experimental Techniques in Chemistry	Faculty of Chemistry	1 Annual

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
2109 - Master's Degree in Experimental Techniques in Chemistry	5 - Master's final project	End Labour Studies

**Coordination**

<b>Name</b>	<b>Department</b>
ESTEVE TURRILLAS, FRANCESC ALBERT	310 - Analytical Chemistry

**SUMMARY**

Subject dedicated to the realization a experimental work in the laboratory that uses the techniques studied in the Master. The students do this work by joining in any of the consolidated research groups of the departments involved in the teaching of the Master, forming part of the work of some of the lines of research of greatest interest.

**PREVIOUS KNOWLEDGE****Relationship to other subjects of the same degree**



There are no specified enrollment restrictions with other subjects of the curriculum.

### Other requirements

Prior knowledge of chemistry and experimental work in the laboratory of chemistry taught in the degrees indicated in the recommended income profile for the student of the master's degree are required.

## COMPETENCES (RD 1393/2007) // LEARNING OUTCOMES (RD 822/2021)

### 2109 - Master's Degree in Experimental Techniques in Chemistry

- Saber aplicar los conocimientos adquiridos y ser capaces de resolver problemas en entornos nuevos o poco conocidos dentro de contextos más amplios (o multidisciplinares) relacionados con su área de estudio.
- Poseer las habilidades de aprendizaje que les permitan continuar estudiando de un modo que habrá de ser en gran medida autodirigido o autónomo.
- Ser capaces de integrar conocimientos y enfrentarse a la complejidad de formular juicios a partir de una información que, siendo incompleta o limitada, incluya reflexiones sobre las responsabilidades sociales y éticas vinculadas a la aplicación de sus conocimientos y juicios.
- Saber comunicar sus conclusiones y los conocimientos y razones últimas que las sustentan a públicos especializados y no especializados de un modo claro y sin ambigüedades.
- To acquire basic skills to develop laboratory work in biomedical research.
- Be able to make quick and effective decisions in professional or research practice.
- Be able to access the information required (databases, scientific articles, etc.) and to interpret and use it sensibly.
- Ser capaces de seleccionar y optimizar las variables instrumentales para obtener los mejores parámetros analíticos en las técnicas experimentales estudiadas.
- Ser capaces de emplear las herramientas básicas para el tratamiento de datos experimentales en el laboratorio.
- Ser capaces de exponer y defender públicamente los resultados y conclusiones de su trabajo de una manera clara y concisa.
- Students should possess and understand foundational knowledge that enables original thinking and research in the field.
- Realizar las labores propias de su profesión, tanto en empresas privadas como en organismos públicos, llevando a cabo estudios basados en el uso de técnicas experimentales, en distintos ámbitos tales como: medioambiental, agroalimentario, sanitario (farmacéutico y clínico), cosmético y en general de la industria del sector químico y afines.
- Realizar estudios relacionados con el análisis y/o la caracterización de sustancias químicas tales como: control de calidad, diseño de protocolos de trabajo para laboratorios, diseño e implementación de procesos de acreditación y validación, diseño y desarrollo de proyectos I+D+I, emisión de informes, certificaciones y/o dictámenes, etc.



- Ser capaces de planificar y gestionar los recursos disponibles de un laboratorio químico, teniendo en cuenta los principios básicos de la calidad, prevención de riesgos, seguridad y sostenibilidad.
- Seleccionar la instrumentación química comercializada apropiada para el estudio a realizar y de aplicar sus conocimientos para utilizarla de manera correcta.
- To prepare a clear and concise memory of the results of your work and the conclusions obtained.
- Ser capaces de aplicar la experiencia investigadora adquirida para iniciar el desarrollo de la fase investigadora de un programa de doctorado en temas relacionados con la química y afines.
- Be able to apply the research experience acquired to professional practice both in private companies and in public organisations.

### **LEARNING OUTCOMES (RD 1393/2007) // NO CONTENT (RD 822/2021)**

Listed here are the results of learning of the subject matter. Due to the fact that consists of only one subject, coincide with the specific objectives to achieve in the teaching-learning process of the subject. At the end of the teaching-learning process the student will be able to:

1. Perform a research work based on studies that require the analysis or the characterization of substances and that is part of a line of more extensive research, with the necessary coordination
2. Use the scientific data bases, abstracts, full text articles, documentation, etc. , required to have a clear vision of the history, originality, interest and feasibility of a particular study
3. Use properly the advanced methods of sample preparation more suitable for a particular study
4. Employ correctly the most appropriate analytical technique to make the determination of the components of interest in a particular study.
5. Work in the field of application required for a particular study, with the maximum safety for the operator and the environment
6. Implement the calibration methods and treatment of data more appropriate to a particular study
7. Develop a clear and concise memory of the results obtained in a research work
8. Explain and defend, to a targeted audience, the development, results and conclusions of a research work done
9. Explain clearly and concisely the conclusions of a research work which may have interest for a non-specialist audience
10. Demonstrate through the realization of the tasks involved in a research work and its exposure and defense, the ability to apply the research experience gained in the planning and implementation of future studies within the field of chemistry or related
11. Regarding the Sustainable Development Goals (SDGs), it is expected that students will be able to know in this subject how to apply the knowledge learned to guarantee an inclusive, equitable, and quality education and promote learning opportunities for everyone (SDG 4), to acquire a special sensitivity for sustainable management of water (SDG 6), raw materials and energy sources (SDG 7), as well as for an environmentally friendly and sustainable development (SDGs 11 , 12, 13, 14 and 15), in addition to being able to design, select and/or develop efficient products, chemical processes, and analytical methodologies (SDG 7) that minimize their impact on the environment (SDGs 14 and 15), using alternative raw materials and reducing wastes (SDG 11)



## DESCRIPTION OF CONTENTS

1. Realization of a research work on a specific research line belonging to the research group of the Tutor and in which the student will be integrated to carry it out

## WORKLOAD

ACTIVITY	Hours	% To be attended
Laboratory practices	180,00	100
Development of individual work	90,00	0
Development of a final project	180,00	0
<b>TOTAL</b>	<b>450,00</b>	

## TEACHING METHODOLOGY

Students are required to complete an individual experimental work related to the use of different experimental techniques studied in the Master.

For each academic year, the Academic Coordinating Commission, on the proposal of professors of the Master, it will provide a list of topics (as well as the names of the corresponding tutors), in sufficient number to which the students have a wide variety of topics to choose from.

## EVALUATION

The evaluation will be carried out based on the following information:

- Activities evaluables for the Tutor by means of the achievement of the experimental work (report of the Tutor)

The competences to evaluate: CB6, CB7, CB8, CB10, CG1, CG2, CG3, CE1, CE2, CE3, CE4, CE5 y CE6

### WEIGHT 20 %

- Presented memory

The competences to evaluate: CE6 y CE7

### WEIGHT 50 %



- Presentation of the work, exhibition and public defense

The competences to evaluate: CE1, CE2, CE3, CE4, CE5, CE6, CE8, CE9 y CE10

**WEIGHT 30 %**

