



# Degree in Chemistry



UNIVERSIDAD  
DE  
CÓRDOBA



Faculty of Science  
University of Córdoba

## Why study **Chemistry at the University of Córdoba?**

Chemistry is a broad field of science dealing with macroscopic and microscopic properties of chemical elements as well as inorganic, organic and biological material compounds, and also with all aspects of transformation and reactivity. It includes researching the structures and mechanisms of chemical transformations, synthesising new compounds, often for technological purposes, and developing methods of qualitative, quantitative and structural analysis. The future of Chemistry has only just begun, given its infinite possibilities for development. One simple reason: there is no limit, thanks to its permanent possibilities for innovation, Chemistry has always had an enormous impact on progress, on the advancement for products and technologies affecting all the spheres of human activity, hence becoming one of the pillars of a country's competitiveness. Research is fundamental for the progress of any science, and at the University of Córdoba, our faculty for the Degree in Chemistry has a high research profile. Most of our faculty is linked to the University Institute of Fine Chemistry and Nanochemistry (IUNAN), which ensures an effective transfer of knowledge into teaching.



### ***"Chemistry Quality Eurolabel" international recognition***

Our Degree in Chemistry at the University of Córdoba has been awarded the Eurobachelor® international label. This recognition is an international guarantee for potential employers that talks about having acquired internationally established competences in the field of chemistry.

## By completing our **Degree in Chemistry** you will obtain:

- A solid and balanced foundation of knowledge and know-how in chemistry that will enable you to assess its applications in different areas of society like manufacturing and management, or environmental and social issues.
- The ability to apply theoretical and practical concepts and competences in chemistry to problem solving.
- Education and talents that will allow you to continue studying on your own account in specialized areas of chemistry or multidisciplinary disciplines.
- A series of indisputable aptitudes for your professional performance and employability: an analytical sense, the use of foreign languages, decision making, teamwork or reasoning, among others.

### Curriculum

Our Degree in Chemistry belongs to the science branch, and has a duration of 4 years and 240 ECTS credits. It provides a broad fundamental training on theoretical and practical aspects of chemistry related to the basic theories of matter and energy, their transformations, the synthesis of new organic and inorganic compounds, their characterization and their determination in a wide variety of samples. Practical skills will be acquired through the completion of a large number of seminars and laboratory practices in modern and up-to-date facilities.

## General Curriculum Structures

Subject category	ECTS
Basic training	60
Compulsory	150
Options	15
Final dissertation	15
<b>TOTAL</b>	<b>240</b>

# Full Curriculum

## FIRST TERM

## SECOND TERM

### YEAR 1

Subject	ECTS	Subject	ECTS
Biology	6	Crystallography and Applied Mineralogy	6
Quantum Physics 1	6	Physics 2	6
General Mathematics	6	Numerical Calculus and Statistics	6
Atomic Structure and Chemical Bonding	6	Chemical Equilibrium and Reactivity in Solutions	6
Change and Equilibrium in Chemistry	6	Organic Functional Groups and Stereochemistry	6

### YEAR 2

Subject	ECTS	Subject	ECTS
Introduction to Analytical Chemistry	6	Analytical Separation Techniques	6
Quantum Chemistry	6	Thermodynamics	6
Inorganic Chemistry	6	Experimentation in Inorganic Chemistry	6
Organic Chemistry 1	6	Organic Chemistry 2	6
Agricultural and Agri-Food Chemistry	6	Biochemistry	6

### YEAR 3

Subject	ECTS	Subject	ECTS
Instrumental Analysis 1	6	Instrumental Analysis 2	6
Kinetics and Electrochemistry	6	Physical Chemistry Extension	6
Inorganic Chemistry Extension	6	Chemistry of Transition Elements	6
Organic Synthesis	6	Organic Chemistry Extension	6
Biochemistry and Molecular Biology	3	Option 1	6
Chemical Engineering 1	3		

### YEAR 4

Subject	ECTS	Subject	ECTS
Chemical Engineering 2	6	Final dissertation	15
Chemistry, History and Society	6	Materials Chemistry	6
Economics and Business Management	6	Chemistry Projects	6
Chemistry Extension	6	Option 3	3
Option 2	6		

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*Our students will acquire  
a solid base of knowledge  
and skills in the field of Chemistry*

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## Options

Subject	ECTS
Organic Structure Determination and Pharmacochimistry	6
Applied Analytical Chemistry	6
Macromolecules and Colloids	6
Inorganic Materials in the Chemical Industry	6
Industrial Chemistry	3
Applied Computational Chemistry	3
Quality Systems for Analytical Laboratories	3
Technological Innovation in Inorganic Materials	3
Industrial Organic Chemistry	3
Food Processing Internships	3
Company internships	3



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### **External internships**

External internships in private companies and public institutions can be carried out as curricular internships, i.e. as an optional subject in the fourth year and second semester, and also as extracurricular internships, which can be included in the European Diploma Supplement (Europass). All the same, they represent an added value to the student's curriculum vitae and their first work experience. The Faculty of Science of the University of Córdoba has agreements with over 400 companies that can offer internships positions for our students.

### **Student mobility**

Complementary training in other universities facilitates employability and foreign language skills as they reinforces respect for diversity and the ability to understand other cultures. The Faculty of Science participates in international mobility programmes, such as Erasmus+, PIMA, UCO Global, with destinations in all continents, as well as national mobility (SICUE).

### **Where is the Degree in Chemistry taught?**

The Degree in Chemistry is taught in the Faculty of Science, located in the Rabanales University Campus. It can be reached by train (it takes around 5 minutes from Córdoba central station), local buses (peripheral lines "E" and "Rabanales") and bicycle lane. The Campus has a variety of facilities and resources that facilitate the academic and social aspects of university life.

## Professional **profile** and **labour integration**

**Chemistry studies enable students to practice the profession in multiple fields:**

### **Manufacturing**

The chemical industry is a strategic sector in Andalusia and in Spain. Chemists can exercise their activity for chemical producers and related companies. We can highlight some examples like: petroleum and derivative processing, biofuel production, metal extraction, manufacture of metallic components, glass, paint and pigments related to diverse solvents, polymers for use in other industries, such as textile (plastics for different uses, synthetic fabrics, viscoelastic foams, dyeing of natural fabrics), perfumes and personal hygiene products (such as gels, deodorants or dentifrices), chemical products (ethanol, ammonia or bleach, etc.), among others.

### **Applied sciences**

Graduates in Chemistry can work in other sectors such as the food industry, the energy sector (e.g. development of new batteries), in waste treatment and management companies, as well as in water treatment and management (drinking water treatment and wastewater treatment plants). Quality management is another area in which chemistry graduates can pursue their careers. Within this profile for applied sciences, Chemists will have access to tasks specifically linked to the health sector, such as the specialties of Resident Chemist (clinical analysis, clinical biochemistry, microbiology and parasitology, and finally, radiopharmacy), as experts in Toxicology, Forensic Sciences, Foreign Trade Inspection institutions and services, following admission tests.

### **University education and research**

After completing the doctorate, they will be ready to carry out teaching and research activities in universities and other research institutions or in R+D+i company departments.

### **Docencia no universitaria**

Chemistry teaching is also required in regulated (secondary education, other higher education bodies and vocational training) and non-regulated education.



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## Web

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**Degree:** [www.uco.es/organiza/centros/ciencias/es/grados/gr-quimica](http://www.uco.es/organiza/centros/ciencias/es/grados/gr-quimica)  
**School:** [www.uco.es/ciencias](http://www.uco.es/ciencias)  
**University:** [www.uco.es](http://www.uco.es)