



# Degree in Biochemistry



UNIVERSIDAD  
DE  
CÓRDOBA

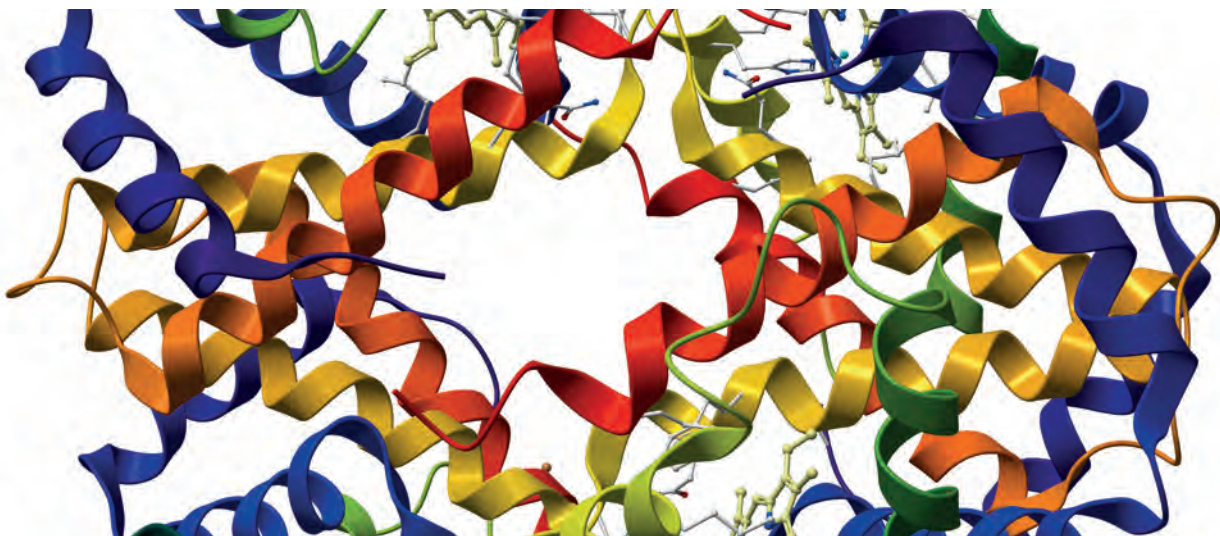


Faculty of Science  
**University of Córdoba**

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

Studies in Biochemistry provide adequate knowledge about the molecular basis of living beings, endowing our students for a better understanding and improvement of many aspects of our daily lives, from health and food to the environment. A professional in this experimental science, duly prepared and trained in the use of specific methodologies, is essential in hospitals, clinical analysis, pharmaceutical or agri-food laboratories, research centers and biotechnology industries in several sectors, which are expanding considerably in current business, both nationally and internationally. Biochemistry is the basis of Biomedicine and Biotechnology and is an experimental science with promising present and future.

Research is an essential pillar in the Science at the University of Córdoba, and the professors of the Degree in Biochemistry work in cutting-edge research areas. The knowledge resulting from this is transferable to teaching, undoubtedly updating its contents. If you are enthusiastic about this field of work... then Biochemistry is your choice.



By following our **Degree in Biochemistry** you will obtain:

- A solid scientific and technical training that will allow you to comprehend and interpret the chemical structure of living organisms and the chemical reactions within.
- The skills to apply your learnings in Biochemistry and Molecular Biology to the professional world, especially in the areas of research and development, including problem solving in Molecular Biosciences through scientific methodologies, analysis capacity, foreign languages, decision making, teamwork, reasoning or critical thinking.
- The learning competences required for further specialization studies with a high degree of autonomy, which comprises the inclusion of scientific-technological findings and innovations in the field of Molecular Biosciences.
- The ability to prepare information and ideas within the area of Biochemistry and Molecular Biology for dissemination within their industry, to other professionals and to the lay public.

## Curriculum

Our Degree in Biochemistry belongs to the science branch, and has a duration of 4 years and 240 ECTS credits. These studies provide an insight about the molecular basis for the functions of living organisms and their applications. The degree in Biochemistry offers a broad training, endowing our students with a solid background for the use and development of the techniques and methodologies necessary to the advancement of this discipline.

## General Curriculum Structure

| Subject category   | ECTS       |
|--------------------|------------|
| Basic training     | 60         |
| Compulsory         | 138        |
| Options            | 30         |
| Final dissertation | 12         |
| <b>TOTAL</b>       | <b>240</b> |

## Full Structure

### FIRST TERM

#### YEAR 1

| Subject             | ECTS | Subject                            | ECTS |
|---------------------|------|------------------------------------|------|
| Chemistry           | 6    | Physical Chemistry                 | 6    |
| Organic Chemistry   | 6    | Statistics applied to Biochemistry | 6    |
| General Mathematics | 6    | Organography                       | 6    |
| Cell Biology        | 6    | Foundations of Genetics            | 6    |
| Physics             | 6    | Foundations of Biochemistry        | 6    |

#### YEAR 2

| Subject                           | ECTS | Subject                                    | ECTS |
|-----------------------------------|------|--|------|
| Foundations of Microbiology       | 6    | Biophysics                                 | 6    |
| Macromolecular Structure          | 6    | Quantitative Instrumental Methods          | 6    |
| Enzymology                        | 6    | Biosynthesis of Macromolecules             | 6    |
| Computing applied to Biochemistry | 6    | Molecular Plant Physiology                 | 6    |
| Animal Molecular Physiology       | 6    | Molecular Genetics and Genetic Engineering | 6    |

#### YEAR 3

| Subject                                      | ECTS | Subject                                       | ECTS |
|--|------|---|------|
| Metabolic Regulation                         | 6    | Clinical Biochemistry and Molecular Pathology | 6    |
| Experimental Biochemistry 1                  | 6    | Experimental Biochemistry 2                   | 6    |
| Immunology                                   | 6    | Industrial Biochemistry and Microbiology      | 6    |
| Food Chemistry and Biotechnology             | 6    | Molecular and Cellular Toxicology             | 6    |
| Environmental Biochemistry and Biotechnology | 6    | Cellular and Molecular Basis of Development   | 6    |

#### YEAR 4

| Subject                   | ECTS | Subject                  | ECTS |
|---------------------------|------|--------------------------|------|
| Molecular Systems Biology | 6    | Biochemistry and Society | 6    |
| Human Genetics            | 6    | Final dissertation       | 12   |
| Option 1                  | 6    | Option 4                 | 6    |
| Option 2                  | 6    | Option 5                 | 6    |
| Option 3                  | 6    |                          |      |




*Studies in Biochemistry provide adequate knowledge about the molecular basis of living beings*



## Option

| Subject   | ECTS |
|---|------|
| Bioanalytical Chemistry                             | 6    |
| Bioorganic Chemistry                                | 6    |
| Bioinorganic Chemistry                              | 6    |
| Physicochemical aspects of biomolecular interaction | 6    |
| Cellular communication and integration              | 6    |
| Plant molecular and cellular Biology                | 6    |
| Virology  | 6    |
| Biochemical Engineering                             | 6    |
| Photobiochemistry and Photobiology                  | 6    |
| Molecular basis of stress in plants                 | 6    |
| Company internships                                 | 6    |



***Our students will acquire the ability to assimilate a plethora of scientific-technological innovations in the field of Molecular Biosciences***

### **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 Biochemistry taught?**

The Degree in Biochemistry 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**

**Graduates in Biochemistry acquire a solid training that enables them to carry out research, development and innovation activities in universities, hospitals, research centers, companies and industries. Among the most important career opportunities for biochemists are the following:**

- Development of R+D+i activities in fields such as biochemistry, genetics, microbiology, toxicology, pharmacology, physiology, molecular pathology, cell therapy and gene therapy. They are able to perform basic research at the molecular level or in combination with innovation and development for both public bodies and private companies.
- Contributions in the agri-food, chemical and pharmaceutical biotechnology industry, regarding the improvement of food production, preservation and packaging, genetic enhancement of fruits, vegetables and greens, crop and fungi amelioration, wine production, biofuels, disease diagnosis, vaccine, therapeutic target and new drug development, nanotechnology, etc.
- Teaching in secondary and middle schooling, university, vocational training, lifelong and postgraduate education. This includes the direction and management of educational centers and educational consulting.
- Conducting hospital resident specialist duties in areas such as clinical analysis, clinical biochemistry, microbiology and parasitology, radiopharmacy and immunology.





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## Dirección

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## Web

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**Titulación:** <http://www.uco.es/organiza/centros/ciencias/es/grados/gr-bioquimica>  
**Centro:** [www.uco.es/ciencias](http://www.uco.es/ciencias)  
**Universidad:** [www.uco.es](http://www.uco.es)