WHAT A BIOCHEMISTRY GRADUATE CAN DO…

Graduates with a First Degree in Biochemistry are qualified to undertake research and development activities at universities, research centres, companies and in industry. The fields in which they can work are:

Research

Biochemists can pursue careers in molecular research in fields such as biochemistry, microbiology, toxicology and pharmacology in both the public and private sectors.

Development

Many research centres, universities and hospitals have departments where biochemists play a key role in I+D+i activities. Research in physiology and molecular pathology, cell therapy and gene therapy are areas with a high demand for these professionals.

Biotechnology

Biotechnological applications of biochemical processes are generating numerous products with an enormous potential for improving the welfare and development of people. Biochemists engage in a wide range of activities in the agrifood, chemical and pharmaceutical biotechnology industry including production improvement, food preservation and packaging, genetic improvement of fruit and vegetables, improvements in cereal and fungi cultivation, improvements in grape growing and wine production, biofuels, disease diagnosis, vaccine development, the search for therapeutic targets and new drugs, nanotechnology, and many others.

Teaching

Teaching and health education at universities is another field open to biochemists.

Health

In addition to research and biotechnology in the health care field, biochemists may opt to do advanced training through residencies at hospitals in the specialities of clinical analysis, clinical biochemistry, microbiology, parasitology, radiopharmacy and immunology after taking the BIR or QIR qualifying exams.

WHY STUDY BIOCHEMISTRY?

Because you attain a broad knowledge and understanding of the molecular basis of living organisms that permits you to improve many aspects of our daily lives, from health and nutrition to the environment.

Because you obtain professional training in this experimental science and the skills required to perform specific methods for use in hospitals, clinical laboratories, pharmaceutical and agrifood companies, research centres and the biotechnology industry; sectors which are undergoing enormous expansion worldwide.

Biochemistry

More information at:

http://www.uco.es/ciencias/

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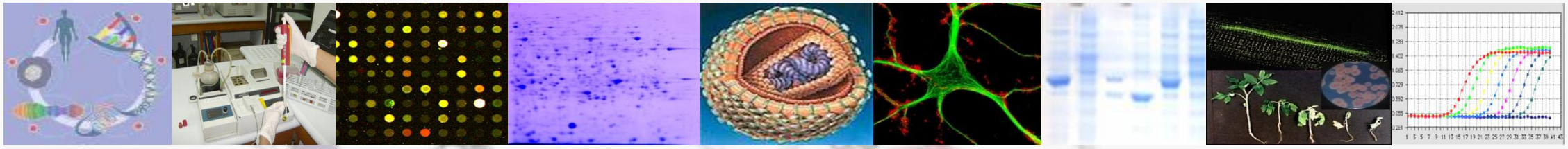
UNIVERSIDAD DE CÓRDOBA

UNIVERSITY OF CORDOBA
School of Science

First Degree in

BIOCHEMISTRY



Learning Outcomes

The learning outcomes of the First Degree in Biochemistry are set out under the agreement reached by the Andalusian First Degree Commission. The Commission, headed by the Universities of Cordoba, Granada and Seville, developed 75% of the curriculum based on the White Paper on the First Degree in Biochemistry and Biotechnology as well as external references.

The specific competencies of the First Degree in Biochemistry aim to ensure that students acquire adequate knowledge of scientific and technological aspects of biochemistry and molecular biology and their role in society and modern life.

The degree also pursues a set of basic competences necessary for personal and professional development.

General Objectives Of The First Degree

1. Acquire comprehensive knowledge of the organisation and functioning of biological systems at the cellular and molecular level and distinguish the molecular mechanisms and chemical transformations responsible for biological processes.

2. Ability to apply knowledge of biochemistry and molecular biology in the professional setting, particularly in the fields of research and development, including problem solving in the field of molecular biosciences using scientific methods.

3. Exchange information and ideas within the fields of biochemistry and molecular biology. Disseminate the results of professional activity to other professionals and general audiences.

4. Develop independent learning skills required for further specialisation including the capacity to assimilate and keep up to date on cutting-edge scientific and technological innovations in the molecular bioscience field.

Course Structure

FIRST YEAR

1st Semester	2nd Semester
▪ Chemistry ▪ Organic Chemistry ▪ General Mathematics ▪ Cell Biology ▪ Physics	▪ Physical Chemistry ▪ Biochemistry Statistics ▪ Organography ▪ Fundamentals of Genetics ▪ Fundamentals of Biochemistry

SECOND YEAR

1st Semester	2nd Semester
▪ Fundamentals of Microbiology ▪ Macromolecular Structure ▪ Enzymology ▪ Biochemistry Computing ▪ Molecular Physiology of Animals	▪ Biophysics ▪ Quantitative Instrumental Methods of Analysis ▪ Macromolecular biosynthesis ▪ Molecular Physiology of Plants ▪ Molecular Genetics and Genetic Engineering

THIRD YEAR

1st Semester	2nd Semester
▪ Regulation of Metabolism ▪ Experimental Biochemistry I ▪ Immunology ▪ Food Chemistry and Biotechnology ▪ Environmental Biochemistry and Biotechnology	▪ Clinical Biochemistry and Molecular Pathology ▪ Experimental Biochemistry II ▪ Industrial Biochemistry and Microbiology ▪ Cell and Molecular Toxicology ▪ Cellular and Molecular Basis of Development

FOURTH YEAR

1st Semester	2nd Semester
▪ Molecular Systems Biology ▪ Human Genetics ▪ Optional course 1 ▪ Optional course 2 ▪ Optional course 3	▪ Biochemistry and Society ▪ Optional course 4 ▪ Optional course 5 ▪ Final Project

OPTIONAL COURSES

▪ Bioanalytical Chemistry ▪ Virology ▪ Biochemical Engineering ▪ Cell Communication and Integration ▪ Bioorganic Chemistry ▪ Bioinorganic Chemistry	▪ Molecular and Cell Biology of Plants ▪ Photobiochemistry and Photobiology ▪ Physicochemical Aspects of Biomolecular Interactions ▪ Molecular Basis of Environmental Stress in Plants

Internships

Doing an internship at outside institutions and companies gives students the opportunity to apply the knowledge and skills they have acquired at university. It is the perfect complement to formal academic training and a highly inspiring experience that is particularly important for those undertaking a scientific and technical degree. The UCO School of Science recognises credits earned through internships. The School of Science currently offers more than 350 internship placements at local, regional and national companies and institutions.

National and International Mobility Programmes

Academic mobility is a fundamental element in the personal and academic development of students. Mobility improves job opportunities, while fostering respect for diversity and the understanding of different cultures. The UCO School of Science participates in a wide range of national and international student mobility programmes to aid students in enhancing their academic training. These include the SICUE-SENECA Programme for mobility between Spanish universities and the ERASMUS and Leonardo da Vinci Programmes in Europe for education and training internships. Other mobility programmes are also available in America and Asia.

Master's and PhD Programmes

The First Degree in Biochemistry provides students direct access to the job market and the opportunity to further their education through Master's or PhD programmes such as those offered by the University of Cordoba.

Resources and Services

A large number of facilities and services are available on the UCO Rabanales Campus:

- Lecture halls, interactive classrooms, computer rooms and laboratories
- Library and study rooms
- Cafeterias
- Banks
- Job information office
- Copy service
- Lucano Student Residence Hall
- Mental Health Service
- Health Care Unit
- Sports facilities (UCOdeporte)
- Wifi