



Biotechnology



information

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Biotechnology



The objective of the course is to train technicians to be skilled in the field of biotechnology, a field of knowledge that encompasses various multidisciplinary subjects with main emphasis on Chemistry, Biology, and Molecular Genetics with a large number of applications ranging from the biomedical / pharmaceutical area to food processing, the energy field, and the environment among others.

The 1st cycle degree enables students to continue their studies at the postgraduate level as they will have a multidisciplinary background that combines Innovation, Entrepreneurship and Management skills, enhancing greater competence in the establishment of business ventures.

The first year is organized around basic studies (Chemistry, Mathematics,

Biology and Physics) which will support the proper understanding of the skills acquired in the subsequent years.

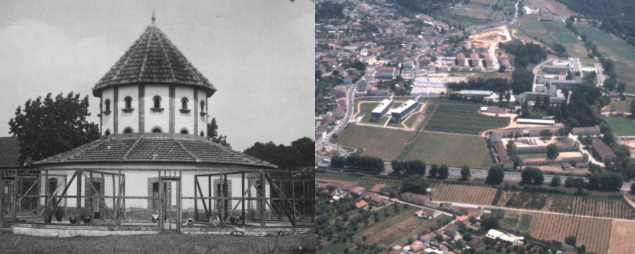
The second, intermediate year, covers the core disciplines of biotechnology (Genetics, Molecular Biology, Genetic Engineering, Animal Physiology, Immunology and Cell Culture).

In the final year, the applications of acquired biotechnological skills complete the knowledge of the techniques used and adapt to the future possibilities of biotechnology.

The design of the course complies with the European recommendations for the first grade levels of Biotechnology.

Structure and Objectives

BSc in BIOTECHNOLOGY



Coimbra, and offers modern facilities, quality equipment, laboratories, as well as vast agricultural land, forests, vineyards and historic buildings, including over one-hundred year old riding school. *ESAC* has achieved excellence in the areas of Agricultural Sciences, Food Science, Forestry, Environmental Studies, Biotechnology and Ecotourism.

A brief history of Escola Superior Agrária de Coimbra

Agricultural studies were created in Portugal during the early 19th century. In 1887, one of the elementary agricultural schools, the Central School of Practical Agriculture, was established in Coimbra in farms once owned by the Church.

Proud of its past, the now called *Escola Superior Agrária de Coimbra (ESAC)* is adapted to new technologies and world changes. The school is located on a campus of 64 ha, in the southern area of

Escola Superior Agrária offers seven Study Programmes:

- **BSc in Agricultural Engineering**
- **BSc in Biotechnology**
- **BSc in Ecotourism**
- **BSc in Environmental Engineering**
- **BSc in Food Engineering**
- **BSc in Forest Resources Engineering**
- **BSc in Organic Agriculture**

Bsc. in Biotechnology

1 st Semester	ECTS	3 rd Semester	ECTS	5 th Semester	ECTS
Introduction to Biotechnology	3	Instrumental Analysis	6	Unit Operations in Biotechnology	5
Biology	6	Statistics	6	Enterprise Management and Entrepreneurship	5
Physics	6	Genetics	4	Animal Biotechnology	5
English Language and Communication Skills	3	Molecular Biology	6	Plant Biotechnology	5
Mathematics and Computer Science	6	Anatomy, Physiology and Nutrition	4	Enzymatic and Fermentation Technology	6
Chemistry and Biochemistry	6	Technological Workshops II	4	Option I	4
2 nd Semester		4 th Semester		6 th Semester	
Biology	6	Biochemical Engineering	5	Environmental and Food Biotechnology	5
Physics	6	Genetic Engineering	6	Organization and Analysis of Projects	5
English Language and Communication Skills	3	Applied Microbiology	5	Option II	3
Mathematics and Computer Science	6	Immunology	5	Option III	5
Chemistry and Biochemistry	6	Cell Culture	5	Training Placement	12
Technological Workshops I	3	Crop and Animal Production	4		

PROSPECTIVE CAREERS

- Higher technical and scientific expertise in applying to biotech technologies at a level of extended processes, including the field of agro-food and energy
- Solid domain of production techniques of biological substances or processes where they operate
- Intervention capacity in planning, preparation, execution and coordination of biotech technologies
- Solid preparation in terms of basic sciences and laboratory level
- Have reached a level of knowledge and skills that enable access and good performance level at the 2nd cycle studies

In view of the variety of the Biotechnology applications, the career opportunities for the graduate students in this field are very several: industry, Service Companies, Technical- Scientific Support, Teaching Institutions and Scientific Research and Development, Fermentation Industry, Agro-Food; Pharmaceuticals, Chemistry.

Entry requirements

- Complete secondary education (12th year or equivalent)
- 12th year examinations: Mathematics or Biology and Geology or Physics and Chemistry
- No pre-requirements needed

DEGREE

BSc in Biotechnology

- Duration: 3 years (1st cycle) / 180 ECTS