

**PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA**  
**MINISTRY OF HIGHER EDUCATION**  
**AND SCIENTIFIC RESEARCH**

**ENGINEERING EDUCATION OFFER**  
**HIGHER SCHOOL OF BIOLOGICAL SCIENCES OF**  
**ORAN**

**Domain:** Natural and Life Sciences

**Program:** Biological Sciences

**Specialization:** Immunotechnology

**Location:** Higher School of Biological Sciences of Oran

**Statement of Reasons:**

In accordance with Executive Decree No. 17-304 dated October 22, 2017, the Preparatory School for Natural and Life Sciences of Oran was transformed into the Higher School of Biological Sciences. This decree, issued by the Prime Minister, outlines the following provisions:

Article 3 - In addition to the general missions defined in articles 19, 20, and 21 of Executive Decree No. 16-176 dated June 14, 2016, the Higher School of Biological Sciences of Oran is tasked with providing advanced education, conducting scientific research, and fostering technological development in the fields of molecular biology, orthopedic biomechanics, bioengineering, enzymatic engineering, and immunotechnology.

**Program Partners:**

***Academic Institutions:***

- ☐ University of Science and Technology of Oran - Mohamed Boudiaf
- ☐ Oran 1 Ahmed Ben Bella University

***Socio-economic Partners:***

- ☐ Sophal Pharmaceutical Laboratory
- ☐ Mediterranean Foundation for Sustainable Development (Djanatu-Al-Arif)

**Admission Requirements:**

First Year of Preparatory Classes: Admission is based on the annual baccalaureate average determined by the Ministry of Higher Education and Scientific Research.

First Year of Second Cycle: 80% of the admission criteria is based on the ranking of the two preparatory years, and the remaining 20% is determined through a competitive entrance examination to higher schools.

**Program Objectives:**

Immunotechnology is a relevant field within biology that plays a crucial role in physiopathological biomedical research across various specializations. The second-cycle training program in immunotechnology aims to provide students with comprehensive theoretical and practical knowledge of the fundamental

principles of immunology, including the understanding of the immune system and its application in combating infectious agents and cancer. Graduates will acquire the necessary skills to engage in current research and advancements in innovative biotechnologies for diagnostic and therapeutic purposes, as well as contribute to the process of innovation valorization and industrialization. Additionally, graduates will possess the entrepreneurial and communication skills required for success in the biotechnology industry, academia, or even for establishing their own ventures.

### **Targeted Profiles and Professional Competencies:**

Upon completion of the program, graduates specializing in Immunotechnology from the Higher School of Biological Sciences of Oran will possess a high-level theoretical and practical education. Students will gain scientific and technical knowledge in immunology, cellular physiology, molecular biology, genetic engineering, and immuno-bioinformatics. They will develop the necessary skills to comprehend and apply fundamental concepts and specific vocabulary related to immunology, analyze tests based on antigen-antibody interactions, and master immunological techniques to effectively solve biological problems. Additionally, graduates will be proficient in biochemistry, molecular biology, microbiology, and genetic engineering, enabling them to develop preventive approaches, vaccines, and therapeutic strategies. They will be capable of addressing various challenges in key sectors such as healthcare, environment, and industry, and will possess the ability to lead projects aimed at proposing solutions for these issues. Through coursework in intellectual property rights, biosafety, bioethics, entrepreneurship, immunotechnology workshops, as well as immersive internships and professional placements, graduates will possess the necessary skills to establish their own businesses. They will be qualified to conduct research, produce scientific documents, and effectively communicate results using modern information and communication technologies.

### **Regional and National Employment Opportunities for Graduates:**

The engineering program in immunotechnology offered by the Higher School of Biological Sciences of Oran primarily focuses on practical, high-level training. Graduates will be well-suited for integration into medical analysis and quality control laboratories, thereby addressing the current shortage of immunology expertise in various quality control, analysis, and diagnostic facilities across the country. In the applied field, trained students can also join Algerian biotechnology companies engaged in the production of biological materials. Efforts are underway to establish partnerships with these companies. Moreover, the program strongly encourages entrepreneurship and the establishment of startups. It also

aims to train future researchers for different research centers and doctoral programs. Graduates will have favorable prospects for employment in diagnostic support research centers, biotechnology, green chemistry, proteomics, and other research centers or laboratories involved in antibody and antigen manipulation.