

Bachelor Program in Biotechnology

◆ Mission and Goal

Biotechnology is one of the most important technologies in this century and is affecting our daily lives in many ways. In medical area it has been used to develop more effective diagnostic methods, producing vaccine and inventing new drugs. In agriculture, it has been used to breed crops with novel traits such as resistance to pathogen and abiotic stresses. It is also applicable to commodity industry and environment protection. The purpose of the Program is to integrate the biotechnology-related professors of NCHU, specifically with the mission in training students capable of independent thinking and self-learning, and competent to support the development of biotechnology in Taiwan.

◆ Curriculum

The curriculum is designed according to the Program's teaching mission. The obligatory courses include General chemistry, Organic chemistry (plus laboratory work), General microbiology, Biological chemistry (plus laboratory work), Introduction to biotechnology, Bioinformatics, Molecular biology, Cell biology, Special topic research, Perspectives on biotechnology from both private and public sectors, and seminar. The diversely selective courses can be grouped into five categories, including plant biotechnology, animal biotechnology, microbial biotechnology, bioinformatics and biomedical engineering, and intellectual propriety and management. Students can choose any selective courses based on their interests. Interdisciplinary learning is encouraged.

◆ Core Research Topics

Teachers related to biotechnology research from the College of Agriculture and Natural Resources, College of Life Science, College of Veterinary Medicine, College of Science, College of Engineering and College of Law and Politics were invited to join the Program. Currently, the Program has approximately 80 faculty members. Core research topics include:

● Natural Drug Development

● IP Analysis for the Application of Biotechnology in Medicine and Agriculture

● International Patent Law

● Plant Virology

● Biochemical Engineering

● Bioinformatics

● Molecular Evolution

● Biofertilizers

● Nutrition and Immunology

● Pharmaceutical Toxicology

● Autoimmunity

● Bio-medical Micro-components

● Tissue Engineering

● Patent Licensing and Technology Transfer

● Transgenic Plant Technology

● Enzyme Engineering

● Molecular Genetics

● Biodiversity

● Applied Microbiology

● Genome and Proteomics

● Medical Biotechnology

● Embryology

● Design of Medical Equipment

● Renewable Energy

◆ Achievements

Feature of Teaching

The main theme of the Program is to provide an integrated curriculum for biotechnology education. Highlights are:

- Diverse courses are provided, enabling students to develop their own careers based on their interests.
- Obligatory courses are minimized, providing students more room for interdisciplinary learning.
- Fundamental and application are treated equally, letting students have a strong background for future research.
- Courses bridging the gap between the upstream research and the industry are continuously set up.

Career Development

Students have been accepted by graduate schools in intellectual property, law, agriculture, microbiology, immunology, toxicology, medicine, pharmacology and medical engineering. They may pursue a career of academic research, education, research and development or management in the field of biotechnology.

		
Field trip to biotechnology companies.	Students arranged exhibition on biotechnology	Students sharing experiences from their laboratory internships
		
Industry leaders sharing experiences	Practicing laboratory techniques	Interdisciplinary learning environment

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