

## **Master of Science (MSc) Program in Biotechnology**

### **Program Director:**

Yung-Hou WONG, Chair Professor of Life Science

The Master of Science (MSc) program in Biotechnology is a multidisciplinary program designed to provide rigorous training to students for professional careers in the biotechnology and pharmaceutical industries. Since its inception in 1993, the program has been widely recognized by professional practitioners in the relevant fields as a premier academic program.

Recently, the program has undergone a major revision to meet the growing and specialized demands of the biotechnology and pharmaceutical industries. The revised program is offered with enrichments in various basic and advanced biotechnological elements, including pharmaceutical, analytical, transgenic and recombinant technology, bioprocessing, business operations and management. All these elements are unique for preparing students to become scientific research leaders with entrepreneurship in emerging bio-industrial areas. With this training and exposure, graduates from the program will be able to initiate innovative solutions in biotechnology and rapidly advance their careers.

### ***Program Learning Outcomes***

On successful completion of the program, graduates will be able to:

- Explain in-depth and up-to-date knowledge in basic and advanced biotechnological elements;
- Evaluate information relevant to concepts and issues of contemporary biotechnology;
- Analyze and solve both theoretical and applied biotechnological problems related to research and technical aspects of the industry;
- Describe legal, ethical, social and business aspects of biotechnology-based products and services; and
- Perform biotechnological research or assessments independently and/or collaboratively with peers.

### ***Admission Requirements***

Applicants should normally possess a first degree in Biological Science or a related area. They should have a proven record of good performance, be proficient in English and must demonstrate basic knowledge in biotechnology concerns. Admission to the program is based on the recommendation by the Committee on MSc Program in Biotechnology.

### ***Program Duration***

The normal period for completing the program is one year in full-time mode and 18 months in part-time mode. The majority of the courses will be conducted on weekday evenings/Saturdays at HKUST.

### ***Program Fee***

The program fee is HK\$108,000 for full-time mode, and HK\$96,000 for part-time mode. New students admitted with credit transfer are also required to pay the full program fee.

### ***Curriculum***

The curriculum has three main components: required courses, elective courses and projects. Students are required to complete a minimum of 26 credits by taking four required courses, three elective courses, and one project. Full-time students are provided with an option to take one extra project course to make up the total credits maximally to 31.

a) Required courses (14 credits)

- BTEC 5210 Principles and Applications in Biotechnology
- BTEC 5220 Business Operations of Biotechnology
- BTEC 5260 Bioanalytical Technology
- BTEC 5760 Concepts in Bioprocessing

b) Elective courses (at least 9 credits)

Students are required to take at least two BTEC or LIFS courses from the following list:

- BTEC 5340 Biomarker and Medical Devices
- BTEC 5360\* Biopharmaceutical Workshop
- BTEC 5380 Drug Discovery and Development
- BTEC 5550 Nutraceuticals and Transgenic Products
- BTEC 5630 Recombinant DNA Technology and Bioproducts
- EEMT 5100 Principles and Techniques for Technical Management
- EEMT 5260 Product Development Management
- EEMT 5510 Engineering Economics and Cost Management
- LIFS 4380\* Pharmacology and Toxicology
- LIFS 5260\* Biochemical and Molecular Basis of Diseases
- LIFS 5710\* Cellular Regulation

c) Project courses (at least 3 credits)

Full-time students are required to take one of the following project courses, with an option to take up to two project courses:

- BTEC 6900 Case Investigation in Biotechnology
- BTEC 6930<sup>#</sup> Directed Biotechnological Research
- BTEC 6940<sup>#</sup> Advanced Biotechnological Research

Part-time students are required to take either one of the following project courses:

- BTEC 6900 Case Investigation in Biotechnology
- BTEC 6930<sup>#</sup> Directed Biotechnological Research

***Graduation Requirements***

To graduate from the program, a student must complete the program with a graduation grade average (GGA) of 2.850 or above as required of all postgraduate students at the University.

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\* *Only for students who can attend day-time courses on weekdays.*

# *Research projects in the area of biotechnology under the supervision of a faculty member. Students enrolled in these courses are required to participate in day-time laboratory work.*