The Chinese University of Hong Kong
Faculty of Science
Department of Biochemistry

Master of Science in
Biochemical and Biomedical Sciences
Part-time programme

MSc Intake 2008
Our Mission

- To create knowledge and facilitate the exchange of ideas.
- To train investigators & researchers in biomedical field.
Department of Biochemistry

Staff (08):
Professor: 29
Honorary/Adjunct Professor: 11
Research Staff: >40

Postgraduate Students (07):
PhD Students: 48
MPhil Students: 38

Undergraduate Students (06):
Biochemistry 137
Medicine 283
Environmental Sciences 89
Food and Nutritional Sciences 96
Molecular Biotechnology 112
Nursing School 567
Pharmacy 30
Chinese Medicine 21
Achievements

• Successfully sequenced the SARS virus genome.
• Participation in the International HapMap Project.
• Area of Excellence: Research in Chinese Medicine.
• The first to clone the fish growth hormone receptors.

• Patents:
  • Novel orange fluorescent proteins - US patent.
  • Tanshinone derivatives as cholinesterase inhibitors.
  • Use of PCR to authenticate Chinese medicines.
  • Novel gene for cancer diagnosis.
  • Use of SPR for biosensors.

• Offer a Joint PhD training program with NIH (US).
Program Features

• CUHK is one of the oldest universities in Hong Kong.

• Department of Biochemistry is one of the largest and oldest departments at CUHK with diversified research activities.

• Covers a wide range of disciplines from biology, biochemistry to biomedical sciences.

• Places a strong emphasis on cutting edge research skills and methods.

• Prepares students for teaching and/or research positions in academia, industry, or government.
Unique Features

• We offer a lab course (BBB6200 Methods in Biochemistry) to introduce both the theory and practical skills for biochemical and biomedical analysis.

Not too many part-time programs offer a lab course.

• Students can conduct research for their MSc project.

• Taught by well-qualified and experienced faculty, with web tools for teaching and learning.

• eLearning & Teaching: CUHK Moodle System
Study Mode:
• Two-year part time basis with a maximum of four years.
  (Friday: 7:15 pm - 9:45 pm; Saturday: 2:30 pm - 5:30 pm)

Language of Instruction: English.

Tuition Fee: HK$ 80,000, paid by four installments.
# Program of Study

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Perspectives in Biochemical Sciences

Presents the latest developments and advancements in biochemical and biomedical sciences.

Examples (One topic/week):
• Pathogenesis and Treatment of HIV Infection and AIDS
• Stem Cells and Stem Cells Research
• Human Genome Projects
• Cancer and its Therapy
• Alcoholism
• Obesity

Lecturers:
Department professors
Biochemical Genetics and Forensic Sciences

Topics include principles of molecular genetics, including the biochemical nature of DNA, genetic codes, regulatory mechanisms, mutation, DNA replication and recombination.

Techniques for proteins & nucleic acids analysis used in forensic analysis will be included.

Lecturers: Prof. Mary Waye and Prof. Henry Cheung Kam-Yin
Biochemical Technology I

Topics will include recombinant DNA technology, mammalian cell culture, protein expression and purification, antibody engineering, drug discovery and development processes.

Examples:
• Transgenic Animal Technology
• Advanced Forensic DNA Analysis
• Antibody Engineering
• Drug Discovery

Lecturers:
Department professors
Biochemical Technology II

It covers the structure of the human genome, the strategies that were used to map and sequence the genome, and details of how genomic sequence information is utilized for pharmacogenomics, drug discovery and diagnostics.

Examples:
• Medical Biotechnology
• Bioinformatics and Data Mining
• Gene Targeting & Gene Profiling

Lecturers: Department professors
Methods in Biochemistry

Allow students to gain theoretical and practical, hands-on knowledge of various advanced research methodologies.

Examples:
• PAGE electrophoresis and Western blot analysis
• DNA electrophoresis and DNA fingerprinting
• Human cell culture & cytotoxicity assay
• PCR and real-time PCR analysis
• ELISA and flow cytometry

Lecturers: Department professors
Clinical Biochemistry and Diseases

Outline the mechanisms for controlling carbohydrate, lipid, nucleotide and amino acid pathways under different physiological and nutritional conditions.

Examples:
• Diabetes mellitus,
• Atherosclerosis
• Lipid disorders,
• Inborn errors of carbohydrates & amino acid metabolism

Lecturers: Professors from Biochemistry and Clinical departments from Prince of Wales Hospital
Biochemistry and Public Health

This course is concerned with the biochemical impacts in environment and food as they relate to public health.

Examples:
• Food additives and contaminants
• Water and sewage treatment
• Pest control
• Pollution

Lecturers:
Department professors
MSc Project

To do a literature survey and/or a mini research on a current topic in biochemistry or biomedical sciences under the supervision of a teaching staff of Department of Biochemistry.

Examples:
1) Experimental research:
Role of ion channels in maintaining the self-renewal characteristic of embryonic stem cells

2) Literature review:
Directing embryonic stem cell differentiation into cardiac lineage
Assessment and Graduation

Assessed by coursework, written examination & performance according to the grading scheme used for postgraduate courses at CUHK.

Course Passing Grade for PG students: Grade C- or above.

No supplementary examination will be arranged.

A student shall be required to discontinue studies if:

1) GPA is 1.0 or below;
2) there are 2 failure grades.

GPA = \( \sum \text{(Course unit x Grade point)}/\text{Total course units} \)

(A:4.0; A-:3.7; B+:3.3; B:3.0; B-:2.7; C+:2.3; C:2.0; C-:1.7; D+:1.3; D:1.0)
1) Course evaluation by students.

2) Review from external examiner.
   Professor from Georgetown University School of Medicine,
   Principle Investigator, National Institute of Health, USA

3) Audits from CUHK Graduate School.

4) Audits from The Quality Assurance Council of the UGC
   (University Grants Committee), HKSAR.
Feedback from students

2006 Dec
• Give up-to-date information on the current issues on biochemistry.
• Genomic project, alcoholism-clear explanation, know more about it.
• Forensic science-give a basic understanding of FS analysis.
• I like the expertise knowledge of the lecturer in his field & his precious experience.
• Too much information in a topic.
• Too theoretical.
• The class starts too late.

2007 May
• Deepen my knowledge on biomedical/biochemistry.
• Introducing concept of bioinformatics which is rather new in the field.
• Time is too short for some topics.
• More assignments and may have discussion & presentation in class.
Postgraduate Homepage

http://www.bch.cuhk.edu.hk/
e-learning system: Moodle
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