

## Molecular Biotechnology

The Molecular Biotechnology Programme is jointly offered by the Departments of Biochemistry and Biology.

### Course List

<i>Code</i>	<i>Course Title</i>	<i>Unit</i>
MBT 0410/0420	Senior Experimental Project I/II	3/3
MBT 2000	Introduction to Molecular Biotechnology	2
MBT 3000	Business and Social Aspects of Biotechnology	2
MBT 4030	Methods in Molecular Biotechnology	2
MBT 4032	Methods in Molecular Biotechnology Laboratory	3
MBT 4510	Plant Biotechnology	3
MBT 4520	Animal Biotechnology	3

### Course Description

MBT 0410/0420

Senior Experimental Project I/II

3/3 U; 3 STOT; 1st/2nd term

Each senior student in the programme will undertake a biotechnology research project at the beginning of the final year under the supervision of a teaching staff member. In the first term, each student will prepare a project proposal and present a seminar (on literature review and methods/approaches). The experiment will run during the final year. The research project will be completed before graduation with a written report and a seminar presentation.

MBT 2000

Introduction to Molecular Biotechnology

2 U; 2 Lect.; 1st term

The aim of this course is to introduce the basic principles and current topics in molecular biotechnology. The course will first cover major discoveries for the advancement of molecular biotechnology, basic principles of gene expression and recombinant DNA technology. Then, selected topics in molecular biotechnology such as human genome project, microbial, plant, animal and medical biotechnology will be introduced.

MBT 3000

Business and Social Aspects of Biotechnology

2 U; 2 Lect.; 1st term

This course addresses the business and social issues related to the use of modern biotechnology. Topics include manufacturing practice of biotechnological products, biosafety, environmental impact, ethical and public concerns, regulation and policy, and issues of intellectual property.

MBT 4030

Methods in Molecular Biotechnology

2 U; 2 Lect.; 2nd term

This course will cover the current methodology and techniques used in biotechnology.

**MBT 4032**

Methods in Molecular Biotechnology Laboratory

3 U; 1 Tut. 4 Lab.; 2nd term

This laboratory course will provide hand-on experience to students in current techniques in biotechnology, including gene construction, transfer, and expression analysis.

**MBT 4510**

Plant Biotechnology

3 U; 3 Lect.; 1st term

This course will provide an overview on the basic principles and recent developments in plant molecular biology and biotechnology. Emphases will be on the molecular biology of unique plant biological processes and the molecular techniques including plant transformation. Development of transgenic plant species with new and improved traits, their release and utilization will be covered.

**MBT 4520**

Animal Biotechnology

3 U; 3 Lect.; 2nd term

This course will cover the developments and applications of transgenic animals including mice, cattle, sheep, goats, pigs, birds and fish. Topics concerning human gene mapping and isolation and somatic cell gene therapy will also be covered.

## Study Scheme

### *I. Major Programme*

#### **A. Applicable to students admitted in 2003-04 and thereafter**

Students are required to complete a minimum of 67 units of courses as follows:

- |      |  |                 |
|------|--|-----------------|
| (i)  | Required Courses (Please see Note):  | 45 units        |
|      | BCH 2010#/2710#, 2020#/2720#, 3010#/3610#, 3020#/3620#, BIO 2010#/2012#, 2310#/2312#, MBT 0410/0420, 2000, 3000, 4030/4032 |                 |
| (ii) | Elective Courses:  |                 |
| (a)  | Two courses with laboratories from:<br>BIO 3410#/3412#, 3530#/3532#, 3630#/3632#   | 10 units        |
| (b)  | One course from:<br>BCH4010# or BIO 4320#  | 3 units         |
| (c)  | Three courses from:<br>BCH4050# or BIO 4410#, BCH3040#, BIO 4330#, MBT 4510, 4520  | 9 units         |
|      |  | <hr/>           |
|      |  | Total: 67 units |

# to be included in the Major GPA as well

#### **Recommended course pattern**

*First Year of Attendance* 27 units

BCH 2010/2710, 2020/2720, 3010/3610, BIO 2010/2012, 2310/2312, MBT 2000

*Second Year of Attendance* 18 or 23 units

BCH 3020/3620, MBT 4030/4032

and 8 or 13 units from (ii,a) and/or (ii,b)

*Third Year of Attendance* 17 or 22 units  
 MBT0410/0420,3000; 0 or 5 units from(ii, a) or(ii, b) and 9 units from(i, c)

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Total: 67units

**B. Applicable to students admitted in 2002-03 and before**

Students are required to complete a minimum of 68 units of courses as follows:

- |      |   |          |
|------|---|----------|
| (i)  | Required Courses (Please see Note):   | 49 units |
|      | BCH2010 <sup>#</sup> /2710 <sup>#</sup> ,2020 <sup>#</sup> /2720 <sup>#</sup> ,3010 <sup>#</sup> /3610 <sup>#</sup> ,3020 <sup>#</sup> /3620 <sup>#</sup> ,BIO<br>2010 <sup>#</sup> /2012 <sup>#</sup> ,2310 <sup>#</sup> /2312 <sup>#</sup> ,CHM2250 <sup>#</sup> /2870 <sup>#</sup> ,MBT0410/0420,2000,<br>3000,4030/4032 |          |
| (ii) | Elective Courses:   |          |
| (a)  | Two courses with laboratories from:   | 10 units |
|      | BIO 3410 <sup>#</sup> /3412 <sup>#</sup> , 3530 <sup>#</sup> /3532 <sup>#</sup> , 3630 <sup>#</sup> /3632 <sup>#</sup>  |          |
| (b)  | One course from:  | 3 units  |
|      | BCH 4010 <sup>#</sup> or BIO 4320 <sup>#</sup>  |          |
| (c)  | Two courses from:   | 6 units  |
|      | BCH 4050 <sup>#</sup> or BIO 4410 <sup>#</sup> , MBT 4510,<br>4520  |          |

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Total: 68 units

<sup>#</sup> to be included in the Major GPA as well

**Recommended course pattern**

*First Year of Attendance* 26 units  
 BCH2010/2710, 2020/2720, BIO 2010/2012, 2310/2312, CHM 2250/  
2870, MBT 2000

*Second Year of Attendance* 23 or 25 units  
 BCH 3010/3610, 3020/3620, MBT 4030/4032 and 8 or 10 units from  
(ii.a) and/or (ii.b)

*Third Year of Attendance* 17 or 19 units  
 MBT 0410/0420, 3000; 3 or 5 units from (ii.a) or (ii.b) and two of  
the following:  
BCH 4050 or BIO 4410, MBT 4510, 4520

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Total: 68 units

Note: Students should obtain Grade "D" or above in each of the courses of BCH 2010/2710, 2020/2720, BIO 2010/2012 and 2310/2312. Otherwise, they are required to repeat the courses. Students who cannot meet the Grade "D" requirement in any one of the fundamental courses mentioned above after two attempts will be required to withdraw from the University. Please refer to Reg.15.2(d) of the General Regulations Governing Full-time Undergraduate Studies.

2. *Faculty Language Requirement*

(Please refer to the "Faculty Language Requirement" of Faculty of Science for details.)