

Doctor of Philosophy
Medical Biochemistry and Molecular Biology (International Program)
(Updated version, 2012)

1. Degree Program : Doctor of Philosophy Program in Medical Biochemistry and Molecular Biology
(International program)

2. Degree Offered : Doctor of Philosophy Program in Medical Biochemistry and Molecular Biology
: Ph.D (Medical Biochemistry and Molecular Biology)

3. Responsible Department/Faculty

Department of Biochemistry, Faculty of Medicine, Khon Kaen University
Graduate School, Khon Kaen University

4. Objectives

The international program for Ph.D in Medical Biochemistry and Molecular Biology (Edited program, 2012) aims to produce PhD graduates who have the following features.

- (1) An understanding of professional standards, principles and theories in Medical Biochemistry and Molecular Biology and related fields, to conduct research for solving complicated problems and creating new knowledge and transferring to the development of their academic or professional according to professional standards.
- (2) The ability to use English to produce and publish scholarly work or knowledge in international level.
- (3) The ability to use the science or mathematics and statistics or the research methodology in critical thinking or problem solving in operational or technical problems, complex and developing new knowledge.
- (4) The ability to use computers and information technology in the pursuit of self and to innovate the academic work.
- (5) The knowledge and skills in research management that can be utilized in the work efficiently.
- (6) Discipline, integrity and responsibility to themselves, their families, profession, society and the nation according to the research ethics, love and pride in region, institutions, and the nation.
- (7) Leadership, understanding in social and cultural diversities, capability to work with others in both national and international level.

5. Curriculum

5.1 Total Credit Hours

| | |
|---|------------|
| Total credit hours for Type 1.1 program not less than | 48 credits |
| Total credit hours for Type 2.1 program not less than | 48 credits |
| Total credit hours for Type 2.2 program not less than | 72 credits |

5.2 Program Structures (●noncredit course)

| | Number of credits | | |
|-----------------------|-------------------|-----------|-----------|
| | Type 1.1 | Type 2.1 | Type 2.2* |
| 1) Compulsory courses | 3● | 11 | 14 |
| 2) Elective courses | - | 1 | 10 |
| 3) Dissertation | 48 | 36 | 48 |
| Total | 48 | 48 | 72 |

*Occasionally, if the students have passed the courses assigned in the program, they have to enroll other courses or repeat the courses according to the suggestion of the Program Executive Committee to get the total coursework of 12 credits.

6. Courses

6.1 Compulsory courses

Type 1.1 Program: the courses are as tools for searching and establishing knowledge related to Medical Sciences and are common-core compulsory courses for all Medical Science Programs.

Type 2.1 Program: students must register at least 11 credits of the courses listed below or some additional course which will be notified later with the permission of the Program Executive Committee.

| | |
|--|----------|
| 356 712 Cells and Molecular Biology | 3(3-0-6) |
| 356 713 Laboratory Techniques in Medical Sciences | 2(0-6-3) |
| 363 702 Medical Biochemistry and Molecular Biology | 3(3-0-6) |
| 363 991 Seminar in Medical Biochemistry and Molecular Biology I | 1(1-0-2) |
| 363 992 Seminar in Medical Biochemistry and Molecular Biology II | 1(1-0-2) |
| 363 993 Seminar in Medical Biochemistry and Molecular Biology III | 1(1-0-2) |

Type 2.2 Program: students must register at least 14 credits of the course listed as similar to Type 2.1 program plus an additional course listed below and some courses which will be notified later with the permission of the Program Executive Committee.

| | |
|---|----------|
| 356 714 Medical Sciences Research Methodology | 3(2-3-6) |
|---|----------|

6.2 Elective courses:

Type 1.1 Program: None

Type 2.1 Program: Students must register at least 1 credits of the course listed below or some additional courses which will be notified later with the permission of the Program Executive Committee.

Type 2.2 Program: Students must register at least 10 credits of the course listed below or some additional courses which will be notified later with the permission of the Program Executive Committee.

| | | |
|---------|---|----------|
| 362 712 | Infection and Immunity I | 2(2-0-4) |
| 362 732 | Bioinformatics | 2(1-3-4) |
| 363 701 | Biochemistry for Graduate Student | 3(3-0-6) |
| 363 703 | Experiments in Medical Biochemistry and Molecular Biology | 2(0-6-3) |
| 363 711 | Medical Nutrition | 2(2-0-4) |
| 363 713 | Advanced Molecular Biology of Genes | 2(2-0-4) |
| 363 715 | Biochemistry and Molecular Biology of Cancer | 2(2-0-4) |
| 363 716 | Medical Biotechnology | 2(2-0-4) |
| 363 718 | Principles and Techniques in Molecular Biology | 1(1-0-2) |
| 363 719 | Advanced Computational Molecular Biology | 1(0-3-2) |
| 363 895 | Selected Topics in Medical Biochemistry and Molecular Biology II | 1(1-0-2) |
| 363 896 | Selected Topics in Medical Biochemistry and Molecular Biology I | 1(1-0-2) |

6.3 Dissertation

Type 1.1 Program:

363 997Dissertation 48 credits

Type 2.1 Program:

363 999Dissertation 36 credits

Type 2.2 Program:

363 998Dissertation 48 credits

7. Class Schedule (●Noncredit course)

Plan for type 1.1

| Course code | Year 1, First semester Course name | Credit Type 1.1 |
|-------------|---|--------------------|
| *363 991 | Seminar in Medical Biochemistry and Molecular Biology I | 1(1-0-2)● |
| 363 997 | Dissertation | 9 |
| | Total credits registered | 9 |
| | Sum of the credits | 9 |

| Course code | Year 1, Second semester Course name | Credit Type 1.1 |
|--------------------|--|----------------------------------|
| *363 992 | Seminar in Medical Biochemistry and Molecular Biology II | 1(1-0-2)● |
| 363 997 | Dissertation | 9 |
| | Total credits registered | 9 |
| | Sum of the credits | 18 |

| Course code | Year 2, First semester Course name | Credit Type 1.1 |
|--------------------|---|----------------------------------|
| *363 993 | Seminar in Medical Biochemistry and Molecular Biology III | 1(1-0-2)● |
| 363 997 | Dissertation | 9 |
| | Total credits registered | 9 |
| | Sum of the credits | 27 |

| Course code | Year 2, Second semester Course name | Credit Type 1.1 |
|--------------------|--|----------------------------------|
| 363 997 | Dissertation | 9 |
| | Total credits registered | 9 |
| | Sum of the credits | 36 |

| Course code | Year 3, First semester Course name | Credit Type 1.1 |
|--------------------|---|----------------------------------|
| 363 997 | Dissertation | 9 |
| | Total credits registered | 9 |
| | Sum of the credits | 45 |

| Course code | Year 3, Second semester Course name | Credit Type 1.1 |
|--------------------|--|----------------------------------|
| 363 997 | Dissertation | 3 |
| | Total credits registered | 3 |
| | Sum of the credits | 48 |

Plan for type 2.1 and 2.2

| Course code | Year 1, First semester Course name | Credit | |
|--------------------|---|-----------------|-----------------|
| | | Type 2.1 | Type 2.2 |
| 356 712 | Cells and Molecular Biology | 3(3-0-6) | 3(3-0-6) |
| 356 713 | Laboratory Techniques in Medical Sciences | 2(0-6-3) | 2(0-6-3) |
| *363 991 | Seminar in Medical Biochemistry and Molecular Biology I | 1(1-0-2) | - |
| xxx xxx | Electives | - | 4 |
| 363 998 | Dissertation | - | - |
| 363 999 | Dissertation | 3 | - |
| | Total credits registered | 9 | 9 |
| | Sum of the credits | 9 | 9 |

| Course code | Year 1, Second semester Course name | Credit | |
|--------------------|--|-----------------|-----------------|
| | | Type 2.1 | Type 2.1 |
| 356 714 | Medical Science Research Methodology | - | 3(2-3-6) |
| 363 702 | Medical Biochemistry and Molecular Biology | 3(3-0-6) | 3(3-0-6) |
| *363 992 | Seminar in Medical Biochemistry and Molecular Biology II | 1(1-0-2) | - |
| xxx xxx | Electives | 1 | 6 |
| 363 998 | Dissertation | - | - |
| 363 999 | Dissertation | 4 | - |
| | Total credits registered | 9 | 12 |
| | Sum of the credits | 18 | 21 |

| Course code | Year 2, First semester Course name | Credit | |
|--------------------|---|-----------------|-----------------|
| | | Type 2.1 | Type 2.1 |
| 363 991 | Seminar in Medical Biochemistry and Molecular Biology I | - | 1(1-0-2) |
| *363 993 | Seminar in Medical Biochemistry and Molecular Biology III | 1(1-0-2) | - |
| 363 998 | Dissertation | - | 8 |
| 363 999 | Dissertation | 8 | - |
| | Total credits registered | 9 | 9 |
| | Sum of the credits | 27 | 30 |

| Course code | Year 2, Second semester Course name | Credit | |
|--------------------|--|-----------------|-----------------|
| | | Type 2.1 | Type 2.1 |
| *363 992 | Seminar in Medical Biochemistry and Molecular Biology II | - | 1(1-0-2) |
| 363 998 | Dissertation | - | 8 |
| 363 999 | Dissertation | 9 | - |
| | Total credits registered | 9 | 9 |
| | Sum of the credits | 36 | 39 |

| Course code | Year 3, First semester Course name | Credit | |
|--------------------|---|-----------------|-----------------|
| | | Type 2.1 | Type 2.1 |
| *363 993 | Seminar in Medical Biochemistry and Molecular Biology III | - | 1(1-0-2) |
| 363 998 | Dissertation | - | 8 |
| 363 999 | Dissertation | 9 | - |
| | Total credits registered | 9 | 9 |
| | Sum of the credits | 45 | 48 |

| Course code | Year 3, Second semester Course name | Credit | |
|--------------------|--|-----------------|-----------------|
| | | Type 2.1 | Type 2.1 |
| 363 998 | Dissertation | - | 9 |
| 363 999 | Dissertation | 3 | |
| | Total credits registered | 3 | 9 |
| | Sum of the credits | 48 | 57 |

| Course code | Year 4, First semester Course name | Credit | |
|--------------------|---|-----------------|-----------------|
| | | Type 2.1 | Type 2.1 |
| 363 998 | Dissertation | - | 9 |
| 363 999 | Dissertation | - | - |
| | Total credits registered | | |
| | Sum of the credits | - | 66 |

| Course code | Year 4, Second semester Course name | Credit | |
|------------------------|--|-----------------|-----------------|
| | | Type 2.1 | Type 2.1 |
| 363 998 | Dissertation | - | 6 |
| 363 999 | Dissertation | - | - |
| | Total credits registered | - | 6 |
| | Sum of the credits | - | 72 |