

Graduate Programs in Biochemistry and Molecular Biology in the Philippines

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Graduate programs in biochemistry and molecular biology are offered by the University of the Philippines (UP) in its various campuses. UP Manila has offered the Master of Sciences (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Biochemistry programs since 1974 and 1984, respectively, and has produced about 40 M.S. graduates since then. On the other hand, UP Diliman and UP Los Baños have offered graduate degree programs in Chemistry and Agricultural Chemistry, respectively, in which students could plan their programs of study guidance of Graduate Advisory Committee with strong orientations in biochemistry. In 1991, the M.S. in Biochemistry program was formally instituted at UP Los Baños.

A separate degree program in molecular biology is available at UP Diliman under its Molecular Biology and Biotechnology Program both at the undergraduate and graduate levels. There is no formal degree in molecular biology at UPLB. However, students interested in molecular biology/biotechnology can enter graduate programs in agricultural chemistry/biochemistry or biology, and under the guidance of a Graduate Advisory Committee take appropriate courses and conduct theses along this area.

In addition, a certificate program in biochemistry is available at UP Manila, for qualified persons who are interested in a teaching career in biochemistry.

The requirements and the curriculum for these various programs are herein presented. Details and other information may be obtained from the University unit concerned.

AT UPMANILA'S DEPT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY

MS Biochemistry Program

Requirements. This program is open to graduates of a Bachelor of Science (B.S.) degree or

its equivalent and preferably those who have taken courses in chemistry, biology, physics and mathematics and holders of the degree of Doctor of Medicine and medical students of the degree of Doctor of Medicine and medical students enrolled in the University of the Philippines who want to work concurrently for the M.D. and M.S. in Biochemistry.

Course Work. The M.S. degree will be awarded upon completion of at least 24 units of formal courses and six units of thesis work. The formal courses consists of 18 units of biochemistry courses and 5 units of cognate courses.

A minimum of 13 courses should be taken in the department. Other courses may be taken outside the department but within the UP system.

A weighted average grade of 2.0 or better is required.

The following constitute the core courses of the MS program:

	Units
Biochem 201.2	
Gen Biochemistry (Lecture)	4
Biochem 201.3	
Gen Biochemistry (Laboratory)	2
Biochem 299	
Seminars in Biochemical Literature	2

PhD Biochemistry Program

Requirements. The applicant must have an M.S. degree in Biochemistry or Chemistry or its equivalent from a recognized institution. Students in the M.S. Biochem program who perform exceptionally well during their first two semester may be considered for a straight Ph.D. program after evaluation by the department's Graduate Committee.

Program of Study. A program Committee of 3 senior faculty members (at least two of whom have a Ph.D. degree) shall be appointed by the De-

partment Chairman to assist the student's performance annually to determine if he may continue in the program. For interdisciplinary programs, the program committee shall consist of at least 5 senior faculty members, at least 4 of whom are Ph.D. or D.Sc. holders.

Course Requirements. Students with M.S. degree in Biochemistry or Chemistry or its equivalent must complete at least 25 units of major graduate courses in the Ph.D. program, including 9 units of cognate courses, and 12 units of dissertation, with a weighted average grade of 1.75 or better.

B.S. graduates must complete at least 45 units of graduate courses plus 12 units of cognate courses. The core courses for the PhD program are as follows:

	Units
Biochem 201.2	
Gen. Biochemistry (Lecture)	4
Biochem 201.3	
Gen. biochemistry (Lab)	2
Biochem 205	
Special Laboratory Techniques	1
Biochem 221	
Nucleic Acids and Nucleotides	3
Biochem 222	
Proteins, Carbohydrates & Lipids	3
Biochem 224	
Physical Biochemistry	3
Biochem 229	
Seminars in Biochemical Literature	2

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Certificate Program in Biochemistry

As mentioned earlier, this program aims to provide training for qualified persons to teach Biochemistry.

Requirements. This programs is open to holders of the Jegree of doctors of Medicine, Doctor of Dental Medicine or its equivalent.

Course Work. Fourteen units of formal courses (6 units of which are core courses) and 1 unit of teaching practicum in Biochemistry.

The core courses are:

	Units
Biochem 201.2	
General Biochemistry Lecture	4
Biochem 299	
Seminars in Biological Literature	1*

* Two units required

Details, other requirements and information may be obtained from:

Department of Biochemistry and Molecular Biology
UP College of Medicine
Pedro Gil, Ermita, Metro Manila
Tel n. (63-2) 59-63-11 Fax no. (63-2) 501-706

AT UP LOS BAÑOS' INSTITUTE OF CHEMISTRY

M.S. in Biochemistry

Requirements. The program is open to holders of a B.S. degree in any of the following: biochemistry, chemistry, agricultural chemistry, food technology, sugar technology or chemical engineering. Applicants with a baccalaureate degree in other fields may be accepted subject to evaluation and conditions imposed by the Institute's Graduate Admission Committee. The following minimum requirements should be met: 4 units of organic chemistry, 5 units of analytical chemistry 3 units of physical chemistry and 5 units of biochemistry at the undergraduate level. In addition, placement examinations in any two other areas of chemistry (inorganic, organic, analytical or physical) and biochemistry are required.

Curriculum. Course requirements include: 10 units of core courses, 6 units of thesis, 6 units of biochemistry/related courses and 9 units of cognate courses.

The core courses are as follows:

	Units
Chem 260 Intermediary Metabolism I	3
Chem 261 Intermediary Metabolism II	3
Chem 263 Analytical Biochemistry	3
Chem 299 Graduate Seminar	1
Chem 300 Master's Thesis	6

A weighted average grade of 2.0 or better is required.

Steps are now being undertaken to institute the PhD in Biochemistry program. In the meantime, students can still specialize in biochemistry under the PhD Agricultural Chemistry Program. Students with special interest in biochemistry-molecular biology, molecular biology-biotechnology or genetics-molecular biology can enter the degree programs in agricultural chemistry/genetics/microbiology.

Inquiries may be addressed to:

The Graduate Admissions Committee
Institute of Chemistry
College of Arts and Sciences
UPLB, College Laguna 4031

For Biology majors, please contact
 The Graduate Admissions Committee
 Institute of Biological Sciences
 UPLB, College, Laguna 4031

AT UP DILIMAN'S COLLEGE OF SCIENCE

M.S. in Molecular Biology and Biotechnology (MBB)

Requirements. Admission requires (1) a bachelor's degree from a recognized institution of higher learning and (2) a high degree of intellectual capacity and aptitude for graduate study in MBB.

Course Work. The following are required:

(1) completion of at least 24 units of formal graduate work (15 units of core course and 9 units of electives) with a cumulative grade of 2.0 or better; (2) 6 units of MS thesis and its successful defense.

The core course for the MS in MBB are as follows:

	Units
MBB 201 Advanced Molecular Biophysics 1	3
MBB 220 Advanced Biochemistry and Physiology of Cells in Vitro	3
MBB 240 Advance in Genetic Manipulation	3
MBB 280 Techniques in Molecular Biology and Biotechnology	3
Biology 260 Advanced Cell and Molecular Biology	3
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Areas of specialization for the MBB programs are (a) Genetic Engineering and Biotechnology, (b) Molecular Physiology and Biochemistry, (c) Cellular Immunology and (d) Molecular Biophysics.

Ph.D. Program in Molecular Biological at Biolotechnology

Requirements. Admission in to the, Ph.D. MBB program requires (1) a Bachelor or a Master's degree from a recognized institution of higher learning and (2) a very high degree of intellectual capacity and aptitude for advanced study and research on MBB. Other admission requirements may be imposed by the program.

Course Work. Qualification for the Ph.D. degree in MBB requires the ff. (1) completion of a program of study consisting of at least 45 units of formal graduate courses in the case of students admitted into the Ph.D. program with a B.S. degree, and of at least 24 units of formal graduate courses for students admitted with an M.S. degree; (2) completion of 12 units of Ph.D. dissertation and its weighted average grade of 1.75 or better. The core courses and the areas of specialization are the same as those for the M.S. MBB program.

Other requirements, details and information maybe obtained from:

The Coordinator
 Molecular Biology and Biotechnology
 Committee
 College of Science, University of the
 Philippines
 Diliman, Quezon City 3004