

BIOLOGY DEPARTMENT

The Department of Biology offers B. S. in Biology and several graduate programs (Master of Science in Biology, Master in Biology, Master in Public Health)

Undergraduate Program

Students wishing to enroll in B. S. in Biology must have a minimum SUAPE result of 80%. Students applying after the first semester of 1998 are required to take the science aptitude exam given by the guidance office. This includes those who are shifting to the program. Results of these exams must be presented to the Department Chair before formal acceptance. Students will be interviewed by the Chair and assigned to advisers who will help in the adjustments to University studies. These faculty advisers will advise students in which subjects to enroll each semester and monitor their performance throughout their stay in the Department. After the semester of the third year, the student may choose his/her special field of concentration either in medical, marine or terrestrial. Major electives will be patterned according to interest. To qualify for graduation, a minimum of 80 units of Biology subjects is needed and a grade of 2.0 in all Biology, Chemistry and Physics subjects. Students who wish to shift to the B. S. in Biology program must have a general QPA of at least 2.0 and is subject to the requirements pertaining to Biology, Chemistry and Physics subjects. They will likewise be interviewed by the Chair and assigned to an adviser. For students who have taken science subjects outside the University, credits will be given only upon passing the validating exams

for the specific subject given by the respective department for courses they wish to be credited for.

Graduate Programs

The Department of Biology offers Master of Science in Biology, Master in Biology and Master of Public Health. To apply, the student has to submit an application letter, curriculum vitae, college transcript of records, letters of recommendation from previous mentors attesting to the capability of the student to fulfill graduate work, and a two-page essay on his/her plans and research interest. In accordance with the research-oriented objectives of the graduate program of the Department, admission of a student is based on the (1) student's performance at the undergraduate level and (2) preliminary interview by a committee of three to be named by the Chair; (3) performance on the department's graduate written examination, to be taken within a few weeks after enrolling in the Graduate School; the student may be exempted from taking the examination or parts thereof, upon recommendation of the interviewing committee. Apart from these, students are required to go to the Registrar's Office to process the crediting general education subjects. Also require about credits for English and Math subjects already taken. For advance credits of science subjects (Biology, Chemistry, Physics and Math).

Entrance Requirements

New students (Freshman)

To enroll as B.S in Biology, the following are required of high school

graduates:

University Requirements

To be submitted to the University Registrar,

(1) Application of Admission – can be obtained from the Registrar Office

(2) SUAPE (Silliman University Aptitude Placement Examination) Results—Examinations are administered by the University Testing Center.

(3) Transcript of secondary record Form 138 (grade card)

(4) Two recommendations of good moral character and fitness to do college work one from a high school teacher /principal councilor one from a Silliman University alumnus or a prominent member of the community

(5) Acceptance letter from the Chair of the Biology Department.

Departmental Requirements

The following are required by the Department Chair before acceptance into the B. S Biology program:

(1) Application letter addressed to the Chair of the Department.

(2) Student Application form – can be obtained from the Department Secretary.

(3) 80% SUAPE result – A photocopy of the results should be submitted to the Chair.

Students with 60%-79% SUAPE results can be accepted into the program under “on probation” (OP) status. Student performance will be assessed after

one ester. If student performance is low, he/she will be advised to shift to another program.

(4) Aptitude/interest examination results – examinations are administered by the University Testing Center.

(5) Copies of recommendations of good moral character and fitness to do college work that were submitted to the Registrar’s Office.

(6) A minimum of 200 word essay of “Reasons in Enrolling in B.S. Biology” discussing the career plans of the student.

(7) Photocopy of transcript of secondary or Form 138 (grade card)

Shiftees

Undergraduate students who plan to shift to the program are required to submit the following to the Chair of the Department:

(1) Student profile from previous course at Silliman University

(2) Letter of recommendation from a faculty or chairperson of the previous Department.

(3) Photocopies of results of SUAPE

(4) Aptitude interest examination results – Examinations are administered by the University Testing Center.

(5) A minimum of 200 words essay of “Reasons in enrolling in B.S Biology “ discussing the career plans of the student.

(6) A minimum cumulative QPA of 2.5

- (7) Minimum grade requirements:
2.5 - Biology 33 and 40
2.0 - for all science and mathematics subjects
2.0 - English 11 and 12

(8) Advanced credit forms subject that can be credited to the B>S Biology curriculum to be determined by the Department Chair.

course the student validates.

3. The department needs a residency to graduate. Thus only a minimum of 50% of the major subjects (biology, chemistry and physics) will be credited by the department.

Transferees

Students transferring from other Universities who wish to enter the program need similar documents required of new students (freshman).

Apart from these, students are required to go to the Registrar's Office to process the crediting of general education subjects. Also inquire about credits for English and Math subjects already taken.

For advanced credits of science subjects (Biology, Chemistry, Physics and Math), the guidelines are as follows:

1. For PAASCU accredited universities and colleges, a grade of greater than 85% or its equivalent can be credited to similar courses by the Department if PAASCU accreditation of previous academic institution is similar to that of Silliman University. To determine the PAASCU status of your previous university/college, please see the University Registrar.

2. For those with grades less than or equal to 85%, a validation exam is required from the respective departments. Results of the validation exam must be submitted to the Chair together with the other requirements. A validation fee is charged for every course the student validates.

REQUIRED B. S. IN BIOLOGY COURSES
Total Number of Required Biology Courses = 65 units

Subject Course	Title	Units	Hours per week	
			Lec	Lab
Biology 30	Bioethics	3	3	
Biology 33R	General Zoology	5	3	6
Biology 40	General Botany	5	3	6
Biology 41	Plant Anatomy and Morphology	2	3	
Biology 43	Plant Physiology	3	3	
Biology 51	Invertebrate Biology	2	3	
Biology 52	Animal Physiology	3	3	
Biology 54	Comparative Vertebrate Anatomy and Phylogeny	3	6	
Biology 55	Developmental Biology	4	3	3
Biology 56	Microbiology, Virology and Bacteriology	5	3	6
Biology 57	History of Biology	1	1	
Biology 58	Biometry	3	3	
Biology 61	Ecology and Field Biology	5	3	6
Biology 62	Principles of Systematics	4	3	3
Biology 63	Cell Biology	3	3	
Biology 64	Introduction to Genetics	4	3	3
Biology 65	Evolutionary Biology	3	3	
Biology 66s	Research Apprenticeship	3		
Biology 68	Introduction to Biological Research	3		3

LIST OF ELECTIVES

Total Number of Units for Major electives = 12 units

For Medical School:		Units
Chemistry 71	Physical chemistry I	4
Chemistry 72	Physical chemistry II	4
Physics 65	Radiation Application in Medicine	3
Biology 74R	General Pathology & Histo-Pathologic Tech.	3
Biology 78	Immunology	3
Biology 79	Human Histology	3
For Marine Biology:		
Biology 71	Mammalogy	3
Biology 72	Natural Resource Management	3
Biology 76	Advanced Biology	3
Biology 80	Ichthyology	3

Biology 81	Phycology	3
Biology 84	Oceanography	3
Biology 85	Marine Benthic Communities	3

LIST OF ELECTIVES

Total Number of Units for Major electives = 12 units

For Terrestrial Biology:		Units
Biology 70	Biology Techniques	3
Biology 71	Mammalogy	3
Biology 72	Natural Resources Management	3
Biology 73	Special Topics in Biology	3
Biology 82	Plant Taxonomy	3
Biology 86	Philippine Land Vertebrate Biology	3
Biology 88	Freshwater Biology	3

BACHELOR OF SCIENCE IN BIOLOGY (2002 Curriculum – September 2003 Update)

First Year

First Semester	Units
Math 11 (College Algebra)	3
Chemistry 15 (General Chemistry)	5
Biology 40 (General Botany)	5
BC 12 (Basic Communication Skills)	3
Filipino 13 (Sining ng Pakikipagtalastasan)	3
Religion 11 (Old Testament Message)	3
PE 11	2
NSTP	(3)
Total	27
Second Semester	Units
Math 12 (Plane Trigonometry)	3
Chemistry 16 (Gen. Chem w/ Quantitative Analysis)	5
Biology 33R (General Zoology)	5
Psychology 11 (Introduction to Psychology)	3
Filipino 24 (Panitikang Pilipino)	3
Religion 22 (New Testament Message)	3
PE 12	2
NSTP	(3)
Total	27

Second Year

First Semester	Units
Math 28 (Mathematical Analysis)	3
Chemistry 47 (Organic Chemistry)	5
Biology 57 (History of Biology)	1
Biology 51 (Invertebrate Zoology)	3
Biology 41 (Plant Anatomy and Morphology)	3

Philosophy 31 (Introduction to Logic)	3
BC 25 (Writing in the Discipline)	3
PE 21	2

Total 25

Second Semester **Units**

Chemistry 88 (Biochemistry)	5
Biology 54 (Comparative Vertebrate Anatomy and Phylogeny)	5
Biology 52 (Animal Physiology)	3
Biology 58 (Biometry)	3
CS - Bio (Computer Use in Biological Research)	3
Speech 11 (Basic Speech)	3
PE 22	2

Total 24

Third Year

First Semester **Units**

Physics 45 (General Physics I)	4
Biology 43 (Plant Physiology)	3
Biology 55 (Developmental Biology)	4
Biology 61 (Ecology and Field Biology)	3
Biology 63 (Cell Biology)	3
Sociology 11 (Introduction to Sociology)	3
Pol. Sci. 11 (Taxation and Land Reform)	3

Total 25

Second Semester **Units**

Physics 46 (General Physics II)	4
Biology 62 (Principles of Systematics)	4
Biology 56 (Microbiology, Virology & Bacteriology)	5
Biology 64 (Introduction to Genetics)	4
Biology 68 (Introduction to Research)	3
Language Elective 1	3

Total 23

SUMMER

* Biology 66s (Research Apprenticeship) - 3

Fourth Year

First Semester **Units**

Physics 47 (General Physics III)	3
Biology Elective 1	3
Biology Elective 2	3
Biology 65 (Evolutionary Biology)	3
Biology 99 (Undergraduate Thesis)	3
Latin 11 (Language Elective 2)	3
Pol. Sci. 51 (Phil. Nat. Gov't. & New Const.)	3

Total 21

*Bio 66s - is not included in computation for QPA

Second Semester	Units
Biology Elective 3	3
Biology Elective 4	3
History 41R (Rizal's Life and Works)	3
Litt 21 (Literature of the Philippines)	3
Biology 30 (Bioethics)	3
Fine Arts 51 (Understanding the Arts)	3
Total	18

COURSE DESCRIPTION

11-12 (GENERAL BIOLOGY) WITH AGRICULTURAL APPLICATIONS I AND II 3 units

These subjects are 3-unit courses offered during the first and second semesters respectively, designed to BS in Agriculture students. The first semester deals mainly with the chemical base of life, biology of the cell and maintenance of functions of organisms. The second semester deals with perpetuation function of organisms. The second semester deals with perpetuation function of organisms and populations, and ecology. Lectures and laboratories are related to agricultural principles and practices. (Lec. 2; Lab. 3).

13-14 (GENERAL BIOLOGY WITH EMPHASIS ON ECOLOGY I AND II) 3 units

These subjects are 3-unit courses offered during the first and second semesters respectively, designed to BS in Social Work students. The course is designed to provide basic knowledge on taxonomy (at least on the family level) and an understanding of natural biological systems. It also includes discussions on local ecological settings, local conservation work and global environmental issues and trends (Lec. 2; Lab. 3)

15 (GENERAL BIOLOGY) 3 units

Biology 15 is a general biology course for non-Biology major in Education and B. S. Nutrition and Dietetics students. The constructivism approach to studying biological systems enables the students to experience learning translatable to their future profession. Both inductive and deductive approach portrays scientific study of plants, animals and microbes. (Lec. 2; Lab. 3)

21-22 (GENERAL BIOLOGY) 3 units

Biology 21 discusses biological principles with emphasis on the scientific method, history of biology and general cellular aspects of all kingdoms. Biology 22 introduces students to the anatomy, morphology and physiology of major groups of organisms. Bio 21 is a prerequisite of Bio 22. (For Mass Communication students and other non-science degree programs that need a total of 10 units of natural sciences). (Lec. 3; Lab. 6)

23R (GENERAL BIOLOGY) 3 units

An ecological approach to plant, animal and microbial life; discusses the aspects

aspects of selected classification levels according to their special adaptations. (For B.S. Education and non-science degree programs that require a 5-unit natural science elective). (Lec. 3; Lab. 6)

24 (GENERAL BIOLOGY WITH EMPHASIS ON HUMAN PHYSIOLOGY) 3 units

An elective course designed for music majors; deals with physiological mechanisms involved in singing and using various musical instruments. (Lec. 3)

25R (GENERAL BIOLOGY) 3 units

A non-laboratory general biology subject for degree programs that require a three-unit science elective (mainly for BBA students). (Lec. 3)

30 (BIOETHICS) 3 units

A philosophical approach to dealing with living things; ethical issues arising from the study, and use of living things are discussed from a Christian perspective. This is an offering taken by B. S. Biology students at their senior year. (Lec. 3)

31-32 (INTRODUCTION TO HUMAN ANATOMY AND PHYSIOLOGY) 3 units

Biology 31 and Biology 32 are an introductory courses on Human Anatomy and Physiology for B. S. in Nursing students. Credit units – 5 units of Bio 31 and 5 units of Bio 32. Each subject consists of 3 hours lecture and 6 hours laboratory work.

33R (GENERAL ZOOLOGY) 3 units

Introduction to the biology of animals, includes chemical and physical basic of life; cell composition and function; cellular processes; tissues, organs and organ systems; and introduction to embryology, genetics and evolution, biodiversity; taxonomy and classification of major groups of animals; and an introduction to ecology. (Lec. 3; Lab. 6)

36R (HUMAN ANATOMY AND PHYSIOLOGY) 3 units

General principles underlying the structure and function of the human body, for medical technology, nursing and psychology students. (Prerequisite: Bio 33R) (Lec. 3; Lab 6)

37 (INTRODUCTION TO MEDICAL MICROBIOLOGY AND PARASITOLOGY) 3 units

Types of microorganisms, parasites and their morphology, physiology and ecological relationships with emphasis on medical aspects. This includes laboratory techniques in cultivation, isolation and identification. For B. S. Nutrition and Dietetics and B. S. Nursing students. Prerequisite: Bio 36R (Lec. 3; Lab 3)

38 (HUMAN ANATOMY) 3 units

Origin, development and histological studies of the different parts and organs of

of the human body with the use of laboratory demonstrations, diagrams and charts, and the examination of prepared slides. (Prerequisite: Bio 22, 23R or 33R) (Lec. 2; Lab 3)

40 (GENERAL BOTANY) 3 units
Basic principles in plant biology such as morphology, anatomy, structural organizations and functional activities; includes plant diversity, ecology, reproduction and evolution. (Lec. 3; Lab. 6)

41 (PLANT ANATOMY AND MORPHOLOGY) 3 units
Comparative anatomy, morphology and development of vascular plants; includes evolution of the plant kingdom. Prerequisite: Bio 40R (Lec. 2; Lab. 3)

43 (PLANT PHYSIOLOGY) 3 units
Overview of the workings of the plant body, includes topics and laboratory exercises in water relations, mineral nutrition, photosynthesis, respiration, hormones and secondary products. Prerequisite: Bio 41 (Lec. 2; Lab 3)

51 (INVERTEBRATE ZOOLOGY) 3 units
Classification, taxonomy, evolution, morphology, physiology, ecology and distribution of invertebrates. Prerequisite: Bio 33R. (Lec. 2; Lab 3)

52 (ANIMAL PHYSIOLOGY) 3 units
Principles of animal (vertebrates and invertebrates) function with emphasis on physiological regulations and adaptations. Prerequisite: Bio 51. (Lec. 3)

**54 (COMPARATIVE VERTEBRATE ANATOMY AND PHYLOG-
ENY) 3 units**
Comparative study of vertebrate anatomy, principles and concepts of animal evolution will be discussed extensively in the lectures. Prerequisite: Bio 33R. (Lec. 3; Lab. 6)

55 (DEVELOPMENTAL BIOLOGY) 3 units
Ontogenetic development of plants and animals; processes and theories of embryonic development; morphological and physiological approaches integrated. Prerequisite: Bio 33R and Bio 40R . (Lec. 3; Lab. 3)

56 (MICROBIOLOGY, VIROLOGY AND BACTERIOLOGY) 3 units
General aspects of the biology of different types of microorganisms; morphology, physiology and ecological relationships of prokaryotic organisms; includes handling, examination, culture and identification of common microorganisms, Prerequisite: Bio 51 and 40. (Lec. 3; Lab. 6)

57 (HISTORY OF BIOLOGY) 3 units
A seminar on the developmental of fundamental concepts and theories in biology. (Lec. 1)

- 58 (BIOMETRY) 3 units**
Biostatistics and its application to experimental design and research data; consideration in data collection and analysis; critique of publications with emphasis on statistical design, includes the use of computers in statistical analysis and data presentation. Prerequisite: Bio 40 and Bio 33R, Math 12). (Lec. 3)
- 61 (ECOLOGY AND FIELD BIOLOGY) 3 units**
Principles and concepts of interrelations between organisms and their environment; Impacts of natural phenomena and human activities on these interrelationships; ecological principles as they apply to actual field conditions. Prerequisites: Bio 41, 51 and 58. (Lec. 3; Lab. 6)
- 62 (PRINCIPLES OF SYSTEMATICS) 3 units**
Rules, principles and practice of classification of plants and animals; selection of criteria to be used in systematics; cladistics, numerical taxonomy and others; laboratory includes a minimum of 15 hours of museum work at either Biology Museum, Centrop or SU Marine Laboratory. Prerequisites Bio 41, 51, 54 and 55. (Lec. 3; Lab. 3)
- 63 (CELL BIOLOGY) 3 units**
Ultrastructure of the prokaryotic and eukaryotic cells; function of cell parts, regulation and control of cellular activities. Prerequisites: Bio 52 and 54, Chem 88. (Lec. 3)
- 64 (INTRODUCTION TO GENETICS) 3 units**
Principles of heredity, includes Mendelian, agricultural, developmental and population genetics. Prerequisites: Bio 63, Math 12). (Lec. 3; Lab. 3)
- 65 (EVOLUTIONARY BIOLOGY) 3 units**
Study of evolution from the formation of the earth, development of conditions for the start of life, theories on the origin of life from simple unicellular organisms to multicellular organisms; development of the Theory of Evolution, Darwinian concept of natural selection, theories on the mechanism of evolution and speciation; evolution of populations; includes required readings on “The Origin of the Species” and other publications. Prerequisites: Bio 62 and 64. (Lec. 3)
- 66s (RESEARCH APPRENTICESHIP) 3 units**
Exposure of students to the different units of the University dealing with biological research: SU Marine Laboratory, Center for Tropical Conservation Studies (CenTrop) and the Biology Museum. They will act as docents and / or research assistants in the field and laboratory. Prerequisite: Bio 61
- 68 ((INTRODUCTION TO BIOLOGICAL RESEARCH) 3 units**
Introduction to scientific writing and paper presentation; writing of methodologies, results and discussions; presentation of statistical results, tables, graphs, bibliography citation and writing; oral presentation of research problem. Prerequisites: Bio 61 and computer science ., (Lec. 3)

- 70 (BIOLOGICAL TECHNIQUES) 3 units**
 Primarily a laboratory course dealing with common laboratory techniques used in laboratories like starting and maintaining cultures (microalgae and bacteria), sampling / collection of specimens (including fixation and preservation), applications of techniques dealing with chemicals (serial dilutions, stock solution preparation) and their proper storage, and other techniques, and methods of measuring different parameters; use, care and maintenance of equipment. Students are required to submit a research paper which will use at least one biological technique learned during the course. The paper can be used as a preliminary study for the student's undergraduate thesis. Prerequisite: Bio 61. (Lec. 1; Lab 4)
- 71 (MAMMALOLOGY) 3 units**
 An introduction to the study of mammals: systematics, zoogeography, evolution, morphology and physiology, behavior, ecology. Prerequisite: Bio 61. (Lec. 2; Lab 3)
- 72 (NATURAL RESOURCES MANAGEMENT) 3 units**
 Introduction to the natural resources of the Philippine and their current state of exploitation; identification of responsible government units and assessment of their effectiveness; possible improvements in management, means of decreasing exploitation rates, and environmental laws will be discussed. Prerequisites: Bio 58 and Bio 61. (Lec. 2; Lab 3)
- 73 (SPECIAL TOPICS IN BIOLOGY) 3 units**
 Selected topics dealing with biodiversity, conservation and management and other topics; subject also serves as a venue for specific courses that can be taught by visiting professors. Prerequisite: Bio 61. (Lec. 3)
- 74 (PATHOLOGIC BASIS OF DISEASE) 3 units**
 Fundamentals in pathological or abnormal processes leading to specific diseases with emphasis on human diseases; gross examination of abnormal tissues. Prerequisites: Bio 54 and Bio 56. (Lec. 1; Lab 4)
- 75 (MODERN PHYSIOLOGY) 3 units**
 General principles underlying the structure and function of the human body using an integrated approach in preparation for medical school. Prerequisite: Bio 52. (Lec. 2; Lab 3)
- 76 (PREVENTIVE MEDICINE AND EPIDEMIOLOGY) 3 units**
 Deals with the study of community health problems and their causes; principles and methods of public health and health education are also emphasized. Prerequisite: Bio 52. (Lec. 2; Lab 3)
- 77 (GENERAL PARASITOLOGY) 3 units**
 Study of the more common protozoan, worm and insect parasites of man and animals, particularly those of regional economic and public importance; physiological and developmental adaptations to parasitism; taxonomic relationships of parasites.

Prerequisite: Bio 56. (Lec. 2; Lab. 3)

78 (IMMUNOLOGY)

3 units

Disease causing organisms in humans; the specific protective response of humans to invading microorganisms, parasites, viruses, bacteria and others; development of long-lasting immunity to reinfection; antibody-antigen reactions; recognition and rejection of foreign cells and tissues as in organ transplantation and blood transfusion. Prerequisite: Bio 52 and 56. (Lec.3 and demonstration - 2)

79 (HUMAN HISTOLOGY)

3 units

Origin, development and histological studies of the different parts/organs of the human body with the use of laboratory demonstrations, diagrams and charts, and the examination of prepared slides. Prerequisite: Bio 33R. (Lec. 2; Lab. 3)

80 (ICHTHYOLOGY)

3 units

An introduction to the study of fishes including systematics and classification, zoogeography, evolution, morphology, anatomy and physiology, embryology, behavior and ecology, and an introduction to fisheries assessment. Prerequisites: Bio 52, 54 and 61. (Lec. 2; Lab. 3)

81 (PHYCOLOGY)

3 units

Morphology and physiology of micro and macro algae, their culture and uses; includes techniques in collection, preservation and preparation of herbarium materials; designed for students who are interested in marine biology. Prerequisite: Bio 61. (Lec. 2; Lab. 3)

82 (PLANT TAXONOMY)

3 units

General principles governing plant taxonomy; classification of plant kingdom in general; familial taxonomy of tracheophytes; floristic alliances of Philippine plants; preparation of herbarium specimens. Prerequisites: Bio 61 and 62. (Lec. 2; Lab.3)

83 (CORAL REEF ECOLOGY)

3 units

Discusses the global distribution and factors that determine distribution of coral reefs; types and composition; evolution of coral reefs; survey methods for resource/ecological/impact assessments; parameters used in the determination of the status of coral reefs; ecological and economic importance; conservation and management strategies with emphasis on the Philippine community-based management; bleaching and El Niño phenomenon. Prerequisites: Bio 51, 61 and 68. (Lec. 2; Lab. 3)

84 (OCEANOGRAPHY)

3 units

Chemical and physical properties of water and seawater and their significance to marine organisms; structure and zonation of the marine ecosystem; biological flow of energy; physical dynamics of oceans; currents, waves, tides and prevailing winds. Prerequisite: Bio 61. (Lec. 2; Lab. 3)

- 85 (MARINE BENTHIC COMMUNITIES) 3 units**
 Identification of marine benthic communities and associated organisms, ecological and economic importance of these communities; includes field exercises on basic techniques used resource and ecological assessment and environmental impact assessments. Prerequisite: Bio 61.
- 86 (PHILIPPINE LAND VERTEBRATE BIOLOGY) 3 units**
 Biology of Philippine vertebrates including amphibians, reptiles, birds and mammals; factors affecting their distribution; status of endemic populations; wildlife conservation and management issues. Prerequisites: Bio 61 and 62. (Lec. 2; Lab. 3)
- 88 (FRESHWATER BIOLOGY) 3 units**
 Covers lake origins, stratification, mixing, physiological characteristics, floral and faunal communities; physical, chemical and characteristics of streams and their geomorphical role in shaping the landscape; management issues related to freshwater biology. Prerequisite: Bio 61. (Lec. 2; Lab. 3)
- 99 (UNDERGRADUATE THESIS) 3 units**
 Independent investigation of an unstudied problem, undergraduate thesis must include abstract, introduction, review of literature, methodology, results, discussion and summary. Thesis format is available with the Department secretary. Students will be assigned to faculty members for guidance and monitoring. Students must submit three bound copies for the Department and the Main Library. For students of senior standing only. Prerequisite – candidacy for graduation.

MASTER OF SCIENCE IN BIOLOGY (2004 Curriculum)

Program Description

The Master of Science in Biology is a research-oriented graduate offering of the Biology Department, aims to (1) provide qualified students research orientation in the field of biology, (2) prepare student careers as college teachers and research scholars, culminating in research activity suitable for a publishable thesis; (3) enlarge through research the body of knowledge about Philippine biology and disseminate the knowledge through publications and improved teaching materials.

Application Requirements

Two copies of the following (one copy to be submitted to the Registrar's and another to the chair of the Biology Department):

- Application Form
- Curriculum Vitae (should include details on teaching and research experience)
- Transcript of Records (Bachelor's degree)

- Transcript of Records (Bachelor's degree)
- Two letters of recommendation from two former professors
- Two passport-sized photographs (to be attached to the application forms)
- Two-page essay about reasons in pursuing the degree and area of research interest.

Admission Requirements

- Must have a bachelor's degree in biology or in a pre-medical curriculum. Applicants who did not graduate with BS Biology degree (example – Agriculture, Fisheries, Forestry and others will be required to take undergraduate deficiency courses.
- Interview with the Chair of the Department or his/her representative
- Admission to the program does not guarantee admission to candidacy for the degree students must apply for the degree after submitting required copies of their thesis.

Degree Requirements

- Successful completion of 30 units (excluding thesis) academic courses with a minimum grade of 3.0 for each subject.
- Successfully pass the five written comprehensive exams that will cover Research, Biometry, Systematics and Evolution, General Botany, General Zoology and Ecology. Comprehensive exams can only be repeated once, otherwise students will be required to enroll in the course he/she failed.
- Presentation and submission thesis

Outside credits

No more than one-third of the total number of units (excluding the 6 units of module related subjects be credited to the program as long as the course description and content is similar to that offered by Approval is subject to the approval of the Chair of the Department.

CURRICULUM

CORE COURSES (15 units)	UNITS
Bio 100 Elements of Research	3
Bio 101 Principles of Systematics and Evolution	3
Bio 102 Advanced Ecology	3
Bio 103 Seminar in Molecular Biology	3
Bio 104 Biometry	3
MAJOR COURSES (9 units)	
Bio 110 Advanced Plant Physiology	3
Bio 111 Advanced Animal Physiology	3
Bio 112 Advanced Evolutionary Biology	3

COGNATE COURSES (6 units)

Bio 120	Seminar in Conservation Biology and Resource Management	3
Bio 121	Freshwater Biology	3
Bio 122	Studies in Animal Behavior	3
Bio 123	Population Biology	3
Bio 124	Ecology of Parasitism	3
Bio 125	Microbial Ecology	3
Bio 126	Plant Pathology	3
Bio 127	Marine Biology and Oceanography	3
Bio 128	Herpetology	3
Bio 129	Ornithology	3
Bio 130	Mammalogy	3
Bio 131	Tropical Vertebrate Biology	3
Bio 132	Seminar in Contemporary Concepts in Biology	3

MASTER THESIS

Bio 200	Masters Thesis	6
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Total		36
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MASTER OF PUBLIC HEALTH

The program is a multi-disciplinary approach to public health problems and issues. The program deals with problems on the local, national and international levels. Students are equipped not only to function in the government sector but also especially for non-governmental organizations (NGOs) with public health interests.

Initial concentration emphasis is Health Education, an essential ingredient to any health program. Emphasis will be on state-of-the-art theory and practice in health education in order to produce health behavioral change.

As to the development of the degree program progresses other concentration tracks will be added, such as: microbiology/parasitology, epidemiology/statistics, public health administration, environmental health/sanitary engineering, and public health nutrition.

GENERAL EDUCATIONAL OBJECTIVES

At the end of the MPH program, the student should be able to obtain the following objectives:

1. An understanding of the ecological factors (bio-physical, socio-economic and spiritual) which influence health, illness and delivery of health services.
2. An understanding of disease prevention and health promotion.
3. Ability to plan, implement and evaluate community health programs
4. Ability to administer health care services
5. An understanding of health behavioral change in individual and groups in order to impact health issues.
6. The ability to apply research methods to health issues and the prioritization of

of health problems.

7. To be a positive change agent in health policies and health status.

ADMISSION REQUIREMENTS

1. Graduates of approved medical, dental and veterinary schools.
2. Graduates with a baccalaureate degree and at least one year of public health experience. The program actively encourages students from a wide range of disciplines in order to impact the public's health. Disciplines such as education, nursing, engineering, theology, medical technology, social work, etc are welcome with appropriate experience.

Prospective students from non-science/health disciplines will be required to take a proficiency examination. Those who do not pass the examination will be required to take the course: Intro to Bioscience and Health 101/3 credits) prior to entering the MPH course proper. Students required to take Intro to Bioscience and Health (IBH) 101 must fulfill all MPH curriculum requirements. IBH 101 may not be applied toward the electives of the MPH program.

OTHER REQUIREMENTS

A minimum of 3.0 (B) average grade with no failing grades

MPH CURRICULUM (Concentration in Health Education)

I. Required Core Courses (21 units)

Subject	Units
PH 101 - Biostatistics	2
PH 111 - Environmental Health Education	3
PH 120 - Research Method	3
PH 121 - Epidemiology	2
PH 131 - Microbiology/Parasitology	3
PH 141 - Public Health Administration	3
PH 151 - Public Health Nutrition	2
PH 171 - Socio-Cultural Health Aspect	3

II. PH 130 - Public Health Administration (Practicum)

III. Electives (9 units)

PH/Ed 102 - School Health Education	3
PH/Ed 112 - Health Education Program Evaluation	3
PH/Ed 124 - Health Communication	3
PH/Ed 132 - Patient Counseling Education	3
PH/Ed 134 - Advanced Program Planning	3
PH/Ed 172 - Readings in Health Education and Health Behavior	1-3

PH/Ed 182 - Health Education in the Community (Practicum)	1-3
PH/Ed 192 - Advanced Health Education Curriculum Methods	3
IV. PH 250 - Thesis Writing	6
TOTAL	39 units

PLAN B (Proposed)

Required Units

I. Required Core Course	21
II. Non-Thesis (Comprehensive Exam) –	
III. PH Administration Practicum (PH 130)	3
IV. Electives (including PH 182)	15

TOTAL	39
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MPH CURRICULUM (Concentration in Public Health Sociology)

Plan A: Units

I. Required Core Courses	21
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II. Public Health Administration (Practicum)	3*
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III. Electives:

Demography (PH 144)	3
Health Ethnic Minorities (PH 154)	3
Rural Health (PH 174)	3
Readings in Public Health Sociology (PH 184)	1-3
Directed Research in Public Health Sociology (PH 194)	1-3
Total Units Required	9*

IV. Thesis (PH 250)	6*
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TOTAL	39
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Plan B (Proposed): Required Units

I. Required Core Courses	21
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II. P.H. Administration Practicum	3
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III. Electives	15
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IV. Non-Thesis (Comprehensive Exam)	
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TOTAL	39
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MPH CURRICULUM
(Concentration in Environmental Health)

Plan A:	Units
I. Required Core Courses	21
II. Public Health Administration (Practicum)	3*
III. Electives:	
Vector – Control Programs (PH 106)	3
Water Supply and Sewerage System (PH 116)	3
Radiation and Health (PH 126)	3
Applied Aquatic Health Sciences (PH 136)	3
Occupational Health (PH 146)	3
Readings in Environmental Health (PH 156)	1-3
Directed Research in Environmental Health (PH 166)	1-3
Sub-Total	9
IV. Thesis (PH 250)	6
TOTAL	39

Plan B (Proposed):	Required Units
I. Core courses (same as above)	21
II. P.H. Administration Practicum	3
III. Electives	15
IV. Non-Thesis (Comprehensive Exam)	
TOTAL	39

MPH CURRICULUM
(General Concentration)
***Admission: Only students with M. D. Degree**

Plan A:	Units
I. Required Core Course	21
II. Public Health Administration (Practicum)	3*
III. Electives:	
Vector – Control Programs (PH 106)	3
Water Supply and Sewerage System (PH 116)	3
Radiation and Health (PH 126)	3
Applied Aquatic Health Sciences (PH 136)	3
Occupational Health (PH 146)	3
Readings in Environmental Health (PH 156)	1-3
Directed Research in Environmental Health (PH 166)	1-3

Sub-Total	9
IV. Thesis (PH 250)	6
TOTAL	39

Plan B (Proposed):	Required Units
I. Core courses (same as above)	21
II. P.H. Administration Practicum	3
III. Electives	15
IV. Non-Thesis (Comprehensive Exam)	
TOTAL	39

**MPH CURRICULUM
(General Concentration)**

***Admission: Only students with M. D. Degree**

Plan A:	Units
I. Required Core Courses	21
II. Public Health Administration (Practicum)	3
III. Electives: (Open: Should include at least one elective from Public Health Administration, Environmental health and Health Education)	9
IV. Thesis (PH 250)	6
TOTAL	39

**MPH CURRICULUM
(Concentration in Public Health Administration)**

Plan A:	Units
I. Required Core Courses	21
II. Public Health Administration (Practicum)	3
III. Electives:	
State Budget Process & Accounting (PH/PA 203)	3
Public Policy Program Monitoring & Performance (PH/PA 202)	3
Public Strategic Planning & Feasibility Studies (PH/PA 204)	3
Human Resource Management in the Public Sector (PH/PA 205)	3
Administrative Behavior (PH/PA 206)	3
Computer Application in Public Health Administration (PH/PA 207)	3
Readings in Public Health Administration (PH 256)	1-3
Sub-Total	9

IV. Thesis (PH 250)	6
TOTAL	39

Plan B (Proposed):	Required Units
I. Required Core courses (same as above)	21
II. P.H. Administration Practicum	3
III. Electives	15
IV. Non-Thesis (Comprehensive Exam)	
TOTAL	39

**MPH CURRICULUM
(Concentration in Epidemiology)**

Plan A:	Units
I. Required Core Courses	21
II. Public Health Administration (Practicum)	3
III. Electives:	
Epidemiology of Infectious and Acute Diseases (PH 108)	3
Epidemiology of Chronic Disease (PH 118)	3
Epidemiology of Sexually Transmitted Diseases (PH 128)	3
Nosocomial Disease Control and Epidemiology (PH 138)	3
Readings in Epidemiology (PH 148)	1-3
Directed Epidemiologic Research (PH 158)	1-3
Computer Applications in Epidemiology (PH 168)	3
Advanced Biostatistics (PH 178)	3
Sub-Total	9
IV. Thesis (PH 250)	6
TOTAL	39

Plan B (Proposed):	Required Units
I. Required Core courses (same as above)	21
II. P.H. Administration Practicum	3
III. Electives	15
IV. Non-Thesis (Comprehensive Exam)	-
TOTAL	39

DIPLOMA/CERTIFICATE IN PUBLIC HEALTH

Course	Units
Environmental Health Education	3
Epidemiology	2
Biostatistics	2

Microbiology/Parasitology	3
Public Health Administration	3
Public Nutrition	3
Socio-Cultural Health Aspect	3
TOTAL	18