



## MASTER IN BIOLOGY

The Master in Biology Program is aimed at enriching tertiary level teachers with the concepts and principles of life sciences, to develop appropriate skills and to inculcate in the students a proper attitude towards biological research and investigation. It is expected that the graduates of this program will be able to a) demonstrate in-depth knowledge, adequate skills, proper attitudes and values in assessing and addressing problems in biology, and b) produce research projects with practical applications in the immediate environment.

### Program Requirements

Advance Academic Writing	(6 units)
Basic/Core courses	12 units
Major Courses	18 units
Cognate/Elective Courses	3 units
Special Problem/Seminar	3 units
Comprehensive Exam	0 unit
<b>Total</b>	<b>36 units</b>

### Course Description

#### *Advance Academic Writing Courses:*

##### **Advanced Technical Reading and Writing 1 (ENG501M)**

##### **3 units**

The first part of an intensive English academic reading and writing course, focuses on the review of basic reading and writing skills and their application in the preparation of short academic papers such as definitions and descriptions, and non-prose forms. It emphasizes the mastery of active reading strategies, the effective use of rhetorical and organizational features of academic writing, and proper documentation.

##### **Advanced Technical Reading and Writing 2 (ENG502M)**

##### **3 units**

The second part of the intensive English academic reading and writing course, focuses on the writing of data commentary and the various parts of a research report, with emphasis on the different rhetorical moves and the linguistic features that realize these moves. The course continues to emphasize the observance of integrity in writing and research.



## **Basic Courses:**

### **Bioethics**

#### **3 units lecture**

This course is an introduction to the basic theories, principles and concepts of a comprehensive life ethics that ranges from the conventional bioethics understood as biomedical ethics to ecological or environmental ethics considering that individual and social human health can only be achieved within a healthy planetary biosphere, i.e., a clean natural environment.

### **Biostatistics**

#### **3 units lecture**

This is an introductory course on the basic principles of data collection, presentation and elementary analysis with computer applications. These principles are demonstrated through a simulated survey.

### **Bioresearch**

#### **3 units lecture**

This course discusses the principles involved in the designs and options available in the planning, documentations, analysis and interpretations of biological research studies. This will provide a synthesis of current methodological thoughts and practices in biological research for one to evaluate and write a research report.

### **Bioinformatics**

#### **2 units lecture, 1 unit laboratory**

This is a course is designed to expose the students in the basic concepts of biology specifically in biodiversity, taxonomy, genetics, and environmental science using computer and other related technology. Societal issues and concerns as influenced by the development of bioinformatics and related fields in biology will also be included.

## **Major Courses:**

### **Advanced Ecology**

#### **2 units lecture, 1 unit laboratory**

This is course will build a foundation of knowledge in basic and applied ecology. It will provide a review of the basic concepts in ecology and will emphasize on the applications of ecological principles to environmental issues. It will encompass topics on the physical environment, populations, communities, ecosystems to the global landscape scale, underpinned with concepts of inter-relationships, regulatory mechanisms, and evolution. It will include lectures, discussions of case studies, computer sessions, field work, and library research which will integrate the theoretical and practical framework of ecology.

### **Advanced Genetics**

#### **2 units lecture, 1 unit laboratory**

This is a course that will include lectures and laboratory activities on classical, molecular and population genetics.



## **Advanced Microbiology**

### **2 units lecture, 1 unit laboratory**

The course involves the study of the anatomy, physiology and genetics of microorganisms, in particular, those of typical and atypical bacteria, viruses, viroids and prions.

## **Advanced Physiology**

### **2 units lecture, 1 unit laboratory**

This is course that deals with the study of plant and animal (vertebrate/human) function, encompassing the dynamic processes of growth, metabolism and reproduction. It blends modern molecular approaches with traditional physiological and biochemical methods and environmental physiology.

## **Advanced Systematics**

### **3 units lecture**

The course deals with the principles of classification and phylogenetic reconstruction. It will involve also applications of systematics in the theoretical and practical framework of biodiversity conservation towards a wholistic approach to sustainable development.

## **Advanced Cell Biology**

### **2 units lecture, 1 unit laboratory**

This is a course that will discuss the structure and functions of the different components of the cell in detail. It also deals with the interaction among cells.

## **Cognate Courses:**

### **Developmental Biology**

#### **3 units lecture, 1 unit laboratory**

This is a course which deals with the different processes of development in animals encompassing embryonic, post-embryonic and adult stages. It covers the morphological events in early ontogeny, cell and tissue interaction and differentiation, and cellular and molecular aspects of early development.

### **Special Problem**

#### **2 units**

This is a course where students select, analyze, and investigate a specific contemporary topic in biology. As a course requirement, the student has to present the result of the investigation in a seminar or research forum. A written report must also be submitted at the end of the presentation.

### **Seminar**

#### **1 unit**

This is a course which will serve as a venue for presentation of the results of special problem projects or researches. Attendance to other seminars or scientific fora may be also credited be to this course.



## **Comprehensive Examination:**

- Students are allowed to take the comprehensive examinations after they have passed/completed all the basic/core, major, and cognate courses.
- The subject areas covered are: General Biology, and any 3 of the major subjects: Systematics, Ecology, Physiology, Microbiology, Genetics, and Cell Biology.
- The student must take all the examinations in the defined subject areas in one testing period. Students who fail the written comprehensive examination may apply for a re-test in the area(s) where they failed. If two or more examinations need to be repeated, all must be taken during one testing period. Students who fail a second time must audit the courses for which they did not pass. After auditing, they may take the comprehensive examinations for the third time.
- The student is officially informed about the results by the department within three (3) weeks after the end of the last testing period.