



COLLEGE OF ARTS AND SCIENCES
UNIVERSITY OF THE PHILIPPINES LOS BAÑOS

R.B. Espino Wing, L.B. Uichanco Hall, UPLB, College, Laguna 4031
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INSTITUTE OF BIOLOGICAL SCIENCES

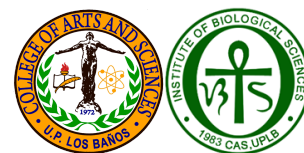
BS Biology Curriculum

BIO 11.1	Investigative Biology Laboratory (2). Integrating concepts in Biology through investigatory approaches. 6 hours (6 lab). PR. None (1,2)
CHEM 18	University Chemistry (3). Chemical concepts, principles and applications. 3 hours (3 class). PR. None (1,2)
CHEM 18.1	University Chemistry (2). Laboratory exercises in university-level General Chemistry. 6 hours (6 class). CoR/PR. CHEM 18.1 (1,2)
MATH 25	Fundamental Calculus (3). Fundamental concepts, methods and applications of differential and integral calculus in one or more variables. 3 hours (2 class, 1 recit). PR. None (1,2)
MCB 11	Biology and Applications of Microorganisms (3). Biology of major groups of microorganisms with emphasis on prokaryotes, and an introduction to applied microbiology. 5 hours (2 class 3 lab). PR. None (1,2)
KAS 1 / HIST 1	<i>Kasaysayan ng Pilipinas / Philippine History (3). Ang pampulitika, pang-ekonomiya, panlipunan, at pangkalinangang pagsulong ng Pilipinas / The political, economic, social and cultural development of the Philippines.</i> 3 hours (3 class). PR. None (1,2)
ARTS 1	Critical Perspectives in the Arts (3). A critical study of the experience, language, and context of art. 3 hours (3 class). PR. None (1,2)
HK 11	Wellness and Basic Injury Management (2). Basic theoretical, and practical concepts of physical conditioning and injury prevention as applied to stress management, first aid, and safety. 2 hours (2 class). PR. None (1,2)
BIO 14	Biodiversity (5). Systematic survey of the diversity of life with emphasis on functional organization, maintenance and integration, reproduction, and development; evolution of the major groups of microorganisms, plants and animals; interrelationships of organisms with their environment. 9 hours (3 class, 6 lab). PR. BIO 11.1 (1,2)
CHEM 40	Basic Organic Chemistry (4). Elementary organic structural theory and functional group chemistry; introduction to carbohydrates, fats, and proteins. 4 hours (4 class). CoR/PR. CHEM 40.1+CHEM 18+CHEM 18.1 (1,2)
CHEM 40.1	Basic Organic Chemistry Laboratory (1). Elementary organic structural theory and functional group chemistry; introduction to carbohydrates, fats, and proteins. 3 hours (3 lab). CoR/PR. CHEM 40 (1,2)
BIO 30	Genetics (3). Mechanisms of heredity and variation, cytogenetics, mutation, nature of genes, population genetics, and quantitative genetics; biometrical procedures. 5 hours (2 class, 3 lab). PR. None (1,2)
STS 1	Science, Technology, and Society (3). Analyses of the past, present and future of science and technology in society (including their nature, scope, role and function) and the social, cultural, political, economic and environmental factors affecting the development of science and technology, with emphasis on the Philippine setting. 3 hours (3 class). PR. None (1,2)



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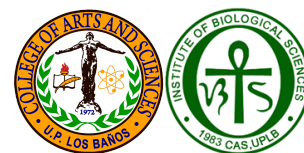
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PI 10	The Life and Works of Jose Rizal (3). Significance of the life and writings of Rizal in the life of the Filipino people. 3 hours (3 class). PR. None (1,2,M)
HK 12 or 13	Human Kinetics Activities or Advanced Human Kinetics Activities (2). Human Kinetics Activities. 2 hours (2 class). PR. None (1,2)
BOT 14	University Botany (3). Analysis of processes and mechanisms shaping plant life; and economic importance of plants. 5 hours (2 class, 3 lab). PR. None (1,2)
ZOO 14	University Zoology (3). Integrative analysis of processes and mechanisms shaping animal life. 5 hours (2 class, 3 lab). PR. None (1,2)
CHEM 160	Introductory Biochemistry (3). Structure and function of biologically active compounds in living systems. 3 hours (3 class). PR. CHEM 40+CHEM 40.1 (1,2,M)
BIO 150	Ecology (4). Organisms, populations, communities, ecosystems, and the biosphere in relation to changes on earth through time. 6 hours (3 class, 3 lab). PR. None (1,2)
NSTP 1	National Service Training Program I (3). 3 hours (3 class). (2)
PHYS 51	Elements of Physics (4). Physical laws governing classical mechanics, thermodynamics, and electromagnetism. 4 hours (4 class). PR. CHEM 40+CHEM 40.1 (1,2,M)
PHYS 51.1	Elements of Physics Laboratory (1). Laboratory exercises in classical mechanics, thermodynamics, and electromagnetism. 3 hours (3 lab). CoR/PR. PHYS 51 (1,2,M)
BIO 101	Introductory Molecular Biology (3). Structure, properties, functions, and interactions of biomolecules in basic cellular processes, with emphasis on the processes involving the genetic material. 3 hours (3 class). PR. BIO 30 and CHEM 160 (1,2)
CHEM 160.1	Introductory Biochemistry Laboratory (2). Structure and function of biologically active compounds in living systems. 6 hours (6 lab). CoR/PR. CHEM 160 (1,2,M)
BIO 140	Evolutionary Biology (3). The basic concepts on the theory of evolution, with emphasis on the processes and mechanisms as revealed in genetics, systematics, ecology, ethology, and historical geology. 3 hours (3 class). PR. BIO 30. (1,2)
ABME 10	Foundations of Entrepreneurship (3). Concepts, values and skills critical to entrepreneurship. 3 hours (3 class). PR. NONE. (1,2)
NSTP 2	National Service Training Program II (3). 3 hours (3 class). (1)
STAT 164	Statistics for Biological Sciences (3). Research design and analysis of data in biological research. 3 hours (2 class, 3 lab). PR. NONE. (1,2)
BIO 120	Cell Biology (3). Nature and function of ultrastructure components and possible relationships to such processes as chemical energy transformations, transport, excitation, movement, and growth. 5 hours (2 class, 3 lab). PR. BIO 30 and CHEM 160. (1,2)
BIO 142	Principles of Systematic Biology (3). The concept of species and the higher taxa and categories in plants, animals, and microorganisms; individual and geographic variation; taxonomic characters, identification, classification; biological nomenclature. 3 hours (3 class). PR. BIO 14 and BIO 30 or COI. (1,2)



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COMM 10	Critical Perspectives in Communication (3). Theories and frameworks of communication in various contexts. 3 hours (3 class). PR. NONE. (1,2)
BIO 195	Research Methods in Biological Sciences (3). Methods and approaches in conducting and communicating research in the biological sciences. 5 hours (2 class, 3 lab). PR. STAT 164. (1,2)
BIO 127	Developmental Biology (3). Molecular and cellular bases of cell determination, differentiation and morphogenesis in relation to multicellularity in plants and animals. 3 hours (3 class). PR. BIO 120 (1,2)
ETHICS 1	Ethics and Moral Reasoning in Everyday Life (3). The nature and development, sources and frameworks of ethics and moral reasoning and their application to various issues and contexts. 3 hours (3 class). PR. NONE. (1,2)
BIO 198	Practicum (3). Minimum 150 hours. PR. COI* (M) *COI: Cell and Molecular Biology: BIO 101. Introductory Molecular Biology; Ecology: BIO 151. Environmental Management; Genetics: BIO130a. Intermediate Genetics I and BIO 130b. Intermediate Genetics II; Microbiology: MCB 101. Microbial Identification Techniques and MCB 180. Introductory Food Microbiology; Plant Biology: BOT 20. Fundamentals of Plant Physiology and BOT 110. Morphology and Anatomy of Plants; Systematics: BOT 140. Systematics of Spermatophytes and ZOO 140. Animal Taxonomy; Wildlife Biology: WLDL 101. Introduction to Philippine Wildlife Zoology: ZOO 113. Comparative Vertebrate Anatomy
COMA 150	Workplace Communication(3). Communication competencies in the workplace. 3 hours (3 class). PR. NONE. (1,2)
BIO 199	Undergraduate Seminar in Biology (1). PR. Senior standing. (1,2)
BIO 200	Undergraduate Thesis in Biology (6). (1,2, M)

Cell and Molecular Biology Major Courses

BIO 125	Principles of Cell and Molecular Biology Techniques (3). Theoretical bases of standard techniques in cell and molecular biology with emphasis on approaches to research problems on gene expression at the cell and molecular levels. 3 hours (3 class). PR. BIO 101 (1,2)
BIO 130a	Intermediate Genetics I (3). The nature and behavior of the genetic material as expressed in the development of the individual. 3 hrs (class). PR. BIO 30. (1,2)
BIO 138	Molecular Genetics (3). The nature, functions and interactions of molecules in heredity; the molecular basis of certain biological phenomena in relation to the genetic material. 3 hrs (class). PR. BIO 101. (1)
VCMB 124	Fundamentals of Immunology (2). Principles of immunology and basic laboratory techniques. 2 hrs (class). PR. COI. (1)
BOT 20	Fundamentals of Plant Physiology (3). Photosynthesis, respiration, nutrition, water relations, transport of materials, and growth of plants. 5 hrs (2 class, 3 lab). PR. None. (1,2)
MCB 120	Microbial Physiology (3). Physiological processes in microorganisms including a study of structure, energy production, macromolecular biosynthesis, nutrition,



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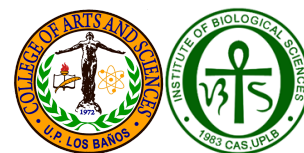
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	and growth. 3 hrs (class). PR. MCB 11 and CHEM 160. (1,2)
ZOO 120	Animal Physiology (5). Mechanisms involved in the functional processes of animals; sources of energy; its distribution and utilization; environmental relations; nervous integration and animal activity; reproduction and development. 9 hrs (3 class, 6 lab). PR. ZOO 113 and CHEM 160. (1,2)
BIO 130b	Intermediate Genetics II (3). The nature and behavior of the genetic material as expressed in the population. 3 hrs (class). PR. BIO 30. (2)
BIO 131	Cytogenetics (3). The chromosomal bases of heredity; variations in chromosome structure and number; hybridization; apomixis and chromosomes in sex determination. 5 hrs (2 class, 3 lab). PR. BIO 30. (2)
BIO 134	Introduction to Genomics and Bioinformatics (3). Structure, organization and function of genomes of selected organisms; techniques in genome analysis and bioinformatics. 3 hrs (3 class). PR. BIO 101. (1,2)
BIO/ENT 137	Insect Genetics (3). Genetic concepts and mechanisms in insects, and their application in taxonomy, pest management, and genetic improvement of beneficial species. 5 hrs (2 class, 3 lab). PR. ENT 101 and BIO 30 or COI and CHEM 40. (1,2)
BIO 139	Human Genetics (3). Physical and molecular bases of genetics of human traits, the application of DNA technology in human biology, and its implications to biosocial issues. 3 hrs (class). PR. BIO 130a. (1)
BIO 180	Biological Microtechnique (3). Collection and preparations of whole mounts and tissue sections of plants and animals; preservation and storage. 7 hrs (1 class, 6 lab). PR. CHEM 40.1. (2,M)
BIO 190	Special Problems (1-3). (May be taken twice provided that the total number of units to be credited to the student's program will not exceed 4 units.)(1,2,M)
BIO 191	Special Topics (1-3). (May be taken twice provided that the total number of units to be credited to the student's program will not exceed 4 units). (1,2)
BOT 101	Phycology (3). Classification, ecology, morphology, physiology, and economic importance of algae. 5 hrs (2 class, 3 lab). PR. BOT 1 or BIO 2 or BIO 3. (2)
BOT 110	Morphology and Anatomy of Plants (3). Structure, function, development, adaptation, and phylogenetic relationships of vascular plants. 5 hrs (2 class, 3 lab). PR. BOT 1 or BIO 3 or COI. (1)
BOT 120	Advanced Plant Physiology (3). Plant function, behavior, and metabolism of primary and secondary plant products and physiological ecology. 5 hrs (2 class, 3 lab). PR. BOT 20 or COI. (2)
BOT/HORT 132	Plant Growth (3). The nature and processes of growth in plants, including the role played in the process by phytohormones. 5 hrs (2 class, 3 lab). PR. BOT 20. (1,2)
CHEM 162	Plant Biochemistry (3). Metabolic processes in plant systems. 3 hrs (class). PR. CHEM 160 or CHEM 161. (2)
ENT 101	General Entomology (3). Introduction to insect adaptations; structural, functional and developmental systems; taxonomy and ecology. 5 hrs (2 class, 3 lab). PR. BIO 2 or BIO 3 or ZOO 1. (1,2)



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ENT 120	Insect Physiology (3). Comparative physiology of insects; functional mechanisms and physiological bases of behavior. 5 hrs (2 class, 3 lab). PR. ENT 101 or COI and CHEM 40. (1)
HORT 133	Plant Tissue Culture (3). Principles and practices in the in vitro culture of plants. 5 hrs (2 class, 3 lab). PR. BOT 20 or COI. (2)
MCB 101	Microbial Identification Techniques (3). Principles and techniques for the morphological, cultural, and physiological characterization of selected groups of microorganisms. 7 hours (1 class, 6 lab). PR. MCB 11. (1,2)
MCB 102	General Virology (3). The physical, chemical, and biological properties of plant, animal, and bacterial viruses. 3 hrs (class). PR. MCB 11. (1,2)
MCB 103	Introductory Medical Microbiology (3). The role and control of medically important microorganisms in human disease development. 3 hrs (class). PR. MCB 11. (1,2)
MCB 130	Microbial Genetics (4). The principles of heredity in microbial systems and their applications in microbiology and molecular biology. 8 hrs (2 class, 6 lab). PR. MCB 101 and BIO 101 or COI. (1,2)
PPTH 104	General Mycology (3). Morphology, life cycles and taxonomy of fungi. 5 hrs (2 class, 3 lab). PR. None. (1,2)
ZOO 113	Comparative Vertebrate Anatomy (5). Comparative and phylogenetic study of vertebrate organ systems; their development, structures, and functions. 9 hours (3 class, 6 lab). PR. ZOO 14. (1,2)
ZOO 115	Animal Histology (3). Detailed study of types, structure, and functions of vertebrate tissues, selected glands and organs; principle of histochemistry. 5 hrs (2 class, 3 lab). PR. ZOO 113. (1,2)
ZOO 117	Developmental Zoology (3). Patterns of growth, differentiation and morphogenesis from molecule to organism; control mechanisms of development; animal life cycles. 5 hrs (2 class, 3 lab). PR. BIO 101. (1,2)

Ecology Major Courses

BIO 151	Environmental Management (3). Principles of environmental management; technological development and activities affecting the environment and pertinent case studies. 3 hours (3 class). PR. BIO 150 or COI. (2)
BIO 155	Biology of Pollution (3). Interactions of biota with polluted environments. 5 hours (2 class, 3 lab). PR. BIO 150 or COI. (1)
BOT 150	Plant Ecology (3). Principles of plant environment interactions in relation to distribution, structure and functioning of plant communities. 5 hrs (2 class, 3 lab). PR. BOT 14 or COI. (2)
MCB 150	Microbial Ecology (3). An introduction to the basic principles of microbial ecology; interrelationships of bacteria, fungi, algae, and protozoa in natural systems. 5 hrs (2 class, 3 lab). PR. MCB 11. (1,2)



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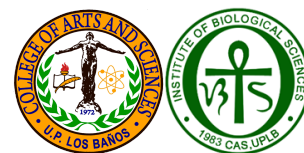
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ZOO 150	Animal Ecology (3). Fundamental factors of the environment, population dynamics, community concepts and principal habitats of animals. 7 hrs (1 class, 6 lab). PR. None. (1,2)
AGRI 151	Principles of Soil Science (3). Nature, properties and management of soils. 5 hrs (2 class, 3 lab). PR. CHEM 15 or CHEM 16. (1,2)
AGRI 121	Introduction to Ecological Agriculture (3). Principles and practices of ecological agriculture. 3 hrs (class). PR. CRSC 2 or COI. (1,2)
BIO 125	Principles of Cell and Molecular Biology Techniques (3). Theoretical bases of standard techniques in cell and molecular biology with emphasis on approaches to research problems on gene expression at the cell and molecular levels. 3 hrs (class). PR. BIO 101. (1,2)
BIO 130a	Advanced Genetics I (3). The nature and behavior of the genetic material as expressed in the development of the individual. 3 hrs (class). PR. BIO 30. (1,2)
BIO 130b	Advanced Genetics II (3). The nature and behavior of the genetic material as expressed in the population. 3 hrs (class). PR. BIO 30 and STAT 1. (2)
BIO 134	Introduction to Genomics and Bioinformatics (3). Structure, organization, and function of genomes of selected organisms; techniques in genome analysis and bioinformatics. 3 hrs (class). PR. BIO 101. (1,2)
BIO 138	Molecular Genetics (3). The nature, functions and interactions of molecules in heredity; the molecular basis of certain biological phenomena in relation to the genetic material. 3 hrs (class). PR. BIO 101. (1)
BIO 152	Biogeography (3). Principles and applications of biogeography. 3 hrs (class). PR. BIO 150. (1)
BIO 154	Cave Ecology (3). Cave ecosystems, biodiversity, and adaptations of organisms. 5 hrs (2 class, 3 lab). PR. BIO 150 or COI. (2)
BIO 159	Conservation Biology in the Tropics (3). Conservation and values of tropical biological diversity, threats, and pertinent policies, methods and strategies in conserving biodiversity. 3 hrs (class). PR. BIO 150 or COI. (2)
BIO 190	Special Problems (1-3). (May be taken twice provided that the total number of units to be credited to the student's program will not exceed 4 units.)(1,2,M)
BIO 191	Special Topics (1-3). (May be taken twice provided that the total number of units to be credited to the student's program will not exceed 4 units). (1,2)
BOT 20	Elementary Plant Physiology (3). Photosynthesis, respiration, nutrition, water relations, transport of materials, and growth of plants. 5 hrs (2 class, 3 lab). PR. BOT 1 or BIO 2 or BIO 3 and CHEM 16 or CHEM 15. (1,2)
BOT 101	Phycology (3). Classification, ecology, morphology, physiology, and economic importance of algae. 5 hrs (2 class, 3 lab). PR. BOT 1 or BIO 2 or BIO 3. (2)
BOT 120	Advanced Plant Physiology (3). Plant function, behavior, and metabolism of primary and secondary plant products and physiological ecology. 5 hrs (2 class, 3 lab). PR. BOT 20 or COI. (2)
BOT 140	Systematics of the Spermatophytes (3). The identification, nomenclature, and classification of the principal families of seed plants, with emphasis on their



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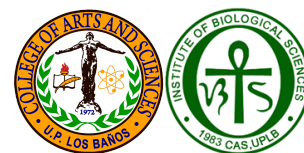
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	geographic distribution and economic importance. 7 hrs (1 class, 6 lab). PR. COI. (1,2)
BOT 152	Phytogeography (3). Principles, patterns, causes, and barriers of plant distribution and migration on land evolution of world vegetations and floristic provinces. 3 hrs (class). PR. BOT 150 or COI. (2)
CERP 122	Conservation of Natural Resources (3). Principles and practices in the use and conservation of natural resources. 3 hrs (class). PR. COI or BIO 150. (1)
CHE 180	Agro-industrial Waste Management (3). Changing practice in agro-industrial production; environmental impact analysis; waste characteristics; waste treatment and disposal fundamentals; waste recycling management. 3 hrs (class). PR. COI. (1,2)
CHEM 180	Environmental Chemistry (3). Chemical concepts and principles applied to the study of the environment and the preservation of environmental quality. 3 hrs (class). PR. CHEM 40 or CHEM 44. (1,2)
CHEM 181	Pollution Chemistry (3). Nature, sources, transformations and effects of pollutive substances in the environment; chemical basis of pollution control and water management; pollution analysis. 3 hrs (class). PR. CHEM 180 or COI. (2)
ENT 101	General Entomology (3). Introduction to insect adaptations; structural, functional and developmental systems; taxonomy and ecology. 5 hrs (2 class, 3 lab). PR. BIO 2 or BIO 3 or ZOO 1. (1,2)
ENT 140	Insect Taxonomy (3). Classification, biology and evolutionary relationships among insect taxa; taxonomic methods; curating insect collections. 7 hrs (1 class, 6 lab). PR. ENT 110 or COI. (2)
ENT 151	Insect Ecology (3). Dynamics of insect population, specifically their abundance, regulation, distribution and mensuration; community theories pertaining to natural control of pest species. 5 hrs (2 class, 3 lab). PR. ENT 140 or COI. (2)
FBS 101	Forest Biodiversity (3). Survey of genetic resources and types of ecosystems in the tropical forest, with emphasis on Philippine forests. 5 hrs (2 class, 3 lab). PR. BOT 1 and ZOO 1, or BIO 1. (1,2)
FBS 126	Forest Entomology (3). Biology and ecology of insects associated with forest trees and forest products; laboratory rearing methods and field work. 7 hrs (1 class, 6 lab). PR. ZOO 1. (2)
FRM 102	Fundamentals of Environmental Forest Management (3). Structure and dynamics of forest ecosystems, principles, decision-making tools and strategies in environmental forest management. 3 hrs (class). PR. FOR 1 and FBS 36 or COI. (2)
HUME 105	Humans and Their Environment (3). Human-environment interaction through time and space; contemporary ecological problems encompassing physical, biological, social and ethical dimensions; implications to human well-being and behavior. 3 hrs (class). PR. HUME 100. (1,2)
HUME 110	Ecology and Value Systems (3). Analysis of value orientation of men and social groups, their role in dealing with the environment, other groups, and institutions. 3 hrs (class). PR. HUME 105 and BIO 150. (1,2)



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LWRE 178	Principles of Tropical Water Quality Management (3). Water quality problems and parameters; monitoring, control, and management systems. 5 hrs (2 class, 3 lab). PR ABE 57. (2)
MCB 101	Microbial Identification Techniques (3). Principles and techniques for the morphological, cultural, and physiological characterization of selected groups of microorganisms. 7 hours (1 class, 6 lab). PR. MCB 11. (1,2)
MCB 120	Microbial Physiology (3). Physiological processes in microorganisms including a study of structure, energy production, macromolecular biosynthesis, nutrition, and growth. 3 hrs (class). PR. MCB 11 and CHEM 160. (1,2)
MCB 130	Microbial Genetics (4). The principles of heredity in microbial systems and their applications in microbiology and molecular biology. 8 hrs (2 class, 6 lab). PR. MCB 101 and BIO 101 or COI. (1,2)
PPTH 103	Introductory Phytobacteriology (3). Nature and biology of bacterial pathogens of plants; their classification, life cycles in relation to disease development, host physiological responses to infection, ecology, and control. 5 hrs (2 class, 3 lab). PR. CRPT 1 or MCB 11. (1,2)
PPTH 104	General Mycology (3). Morphology, life cycles and taxonomy of fungi. 5 hrs (2 class, 3 lab). PR. BIO 2 or BIO 3 or BOT 1. (1,2)
PPTH 115	Introductory Plant Virology (3). Nature of plant viruses and symptoms of diseases produced; principles and techniques of transmission; purification, serology, and electron microscopy. 5 hrs (2 class, 3 lab). PR. CRPT 1 or MCB 11. (1,2)
SFI 123	Fundamentals of Agroforestry (3). Principles and practices of agroforestry; managing agroforestry projects. 5 hrs (2 class, 3 lab). PR. COI. (1,2)
SOIL 150	Soil Fertility (3). Soil nutrient elements and their availability in relation to soil properties, evaluation of soil fertility status, use of fertilizers and other soil amendments. 3 hrs (class). PR. SOIL 1 or COI. (1,2)
VMCB 122	Veterinary Bacteriology and Mycology (3). Bacteria and fungi of veterinary importance with emphasis on their pathogenicity, epidemiology and laboratory diagnosis. 5 hrs (2 class, 3 lab). PR. VMCB 121. (1)
VMCB 123	Veterinary Virology (2). Viruses and rickettsiae of veterinary importance with emphasis on their pathogenicity, epidemiology and laboratory diagnosis. 2 hrs (class). PR. VMCB 121. (2)
VMCB 124	Fundamentals of Immunology (2). Principles of immunology and basic laboratory techniques. 2 hrs (class). PR. COI. (1)
VPH 121	Epidemiology (3). Principles and methods of epidemiology. 5 hrs (2 class, 3 lab). PR. VMCB 121. (1)
WLDL 101	Introduction to Philippine Wildlife (3). Survey of Philippine flora and fauna; biology and ecology of selected species. 5 hrs (2 class, 3 lab). PR None. (1)
WLDL 105	Principles of Wildlife Management (3). Interrelationships of wildlife biology, habitat ecology, and population dynamics as they affect management problems. 3 hrs (class). PR. WLDL 101 or COI. (1)
WLDL 150	Wildlife Ecology (3). Ecological factors that influence abundance in the tropical ecosystems. 3 hrs (class). PR WLDL 101. (2)



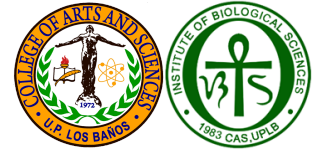
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WLDL 195	Techniques of Wildlife Management (3). Field and laboratory method used in wildlife management and research; including identification of signs, population census, food habits, trapping, transplantation, collection and preservation of specimens. 7 hrs (1 class, 6 lab). PR. WLDL 105. (2)
ZOO 140	Animal Taxonomy (3). Principles of animal taxonomy; taxonomic literature and catalogs, with special reference to Philippine fauna. 5 hrs (2 class, 3 lab). PR. ZOO 1 or BIO 2 or BIO 3. (1,2)
ZOO 142	Invertebrate Zoology (3). Systematics, ecology, and evolutionary relationships of invertebrates. 5 hrs (2 class, 3 lab). PR. ZOO 3. (1,2)
ZOO 145	Herpetology (3). Taxonomy of Philippine reptiles and amphibians; biology and ecology of important species; collection and preparation for scientific study. 7 hrs (1 class, 6 lab). PR. ZOO 3. (1)
ZOO 146	Ornithology (3). Taxonomy of Philippine birds; biology and ecology of important species; collection and preparation for scientific study. 7 hrs (1 class, 6 lab). PR. ZOO 3. (2)
ZOO 148	Mammalogy (3). Taxonomy of Philippine mammals; biology and ecology of important species; collection and preparation for scientific study. 7 hrs (1 class, 6 lab). PR. ZOO 3. (2)
ZOO 149	Biology of Marine Mammals (3). Life history, systematics ecology, and conservation of marine mammals of the world, with emphasis on those found within the Philippine waters. 3 hrs (class). PR. ZOO 3 or COI. (1)
ZOO 151	Marine Zoology (5). Taxonomy and ecology of marine invertebrates and vertebrates; collection, preservation, and storage of marine ecological specimens. 11 hrs (2 class, 9 lab). PR. ZOO 3 and BIO 150 or ZOO 150. (M)
ZOO 152	Freshwater Zoology (3). Ecology and taxonomy of the freshwater fauna. 7 hrs (1 class, 6 lab). PR. ZOO 3 and BIO 150 or ZOO 150. (1,2)
ZOO 153	Marine Animal Ecology (3). Adaptations of marine animals and their interactions with the environment in different marine habitats. 3 hrs (class). PR. BIO 150. (2)
ZOO 155	General Limnology (3). Origin, classification, and structures of inland waters; their physical, chemical, and biological processes. 3 hrs (class). PR. COI. (1)
ZOO 160	General Malacology (3). Morpho-taxonomy, ecology, and physiology of different molluscan classes, with emphasis on economically and medically important species. 5 hrs (2 class, 3 lab). PR. ZOO 3 and BIO 150 or ZOO 150. (1)
ZOO 173	Introduction to Parasitology (3). Fundamental principles of parasitology, with reference to man and other animals. 5 hrs (2 class, 3 lab). PR. ZOO 1 or BIO 2 or BIO 3. (1,2)
ZOO 113	Comparative Vertebrate Anatomy (5). Comparative and phylogenetic study of vertebrate organ systems; their development, structures, and functions. 9 hours (3 class, 6 lab). PR. ZOO 14. (1,2)
ZOO 120	Animal Physiology (5). Mechanisms involved in the functional processes of animals; sources of energy; its distribution and utilization; environmental relations; nervous integration and animal activity; reproduction and development. 9 hrs (3 class, 6 lab). PR. ZOO 113 and CHEM 160. (1,2)



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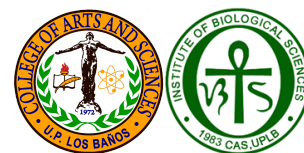
Genetics Major Courses

BIO 130a	Advanced Genetics I (3). The nature and behavior of the genetic material as expressed in the development of the individual. 3 hours (3 class). PR. BIO 30. (1,2)
BIO 130b	Intermediate Genetics II (3). The nature and behavior of the genetic material as expressed in the population. 3 hrs (class). PR. BIO 30. (2)
BIO 131	Cytogenetics (3). The chromosomal bases of heredity; variations in chromosome structure and number; hybridization; apomixis and chromosomes in sex determination. 5 hrs (2 class, 3 lab). PR. BIO 30. (2)
BIO 134	Introduction to Genomics and Bioinformatics (3). Structure, organization and function of genomes of selected organisms; techniques in genome analysis and bioinformatics. 3 hrs (3 class). PR. BIO 101. (1,2)
BIO 138	Molecular Genetics (3). The nature, functions and interactions of molecules in heredity; the molecular basis of certain biological phenomena in relation to the genetic material. 3 hrs (class). PR. BIO 101. (1)
ABT 104	Experimental Techniques in Agricultural Biotechnology II (3). Laboratory tools and procedures in bioinformatics, protein isolation and purification, molecular marker technology, and recombinant DNA technology. 7 hrs (1 class, 6 lab). PR. ABT 101 OR COI. (1,2)
ABT 106	Molecular Markers (3). Principles and applications of molecular marker technologies in agriculture, medicine industry and environment. 5 hours (2 class, 3 lab). PR. ABT 101 or COI (1,2)
ABT 107	Recombinant DNA Technology (3). Principles and applications of recombinant DNA technology. 3 hours (class). PR. ABT 101 or COI (1,2)
CRSC 105	Principles of Plant Breeding (3). Development, Evaluation and Maintenance of Improved Crop Plants. 3 hours (class). PR. BIO 30 (1,2)
AGR 150	Methods in Plant Breeding I (3). Methods and techniques in the improvement of crop plants. 5 hrs (2 class, 3 lab). PR. AGR 50 (1,2)
AGR 160	Plant Genetic Resources Conservation and Management (3). Concepts and Methods of Plant Genetic Resources Collection, Conservation, Evaluation, Documentation and Use. 5 hrs (2 class, 3 lab). PR. CRSC 105 or COI (1)
ANSC 103	Principles of Animal Breeding (3). Genetics and statistical bases of animal improvement; topics in reproduction; including artificial insemination. 5 hrs (2 class, 3 lab). PR. AGRI 22 (formerly ANSC 2) and BIO 30 (1,2)
ANSC 161	Methods in Animal Breeding (3). Measurement and inheritance of economically important traits of farm animals; system of breeding and selection; inbreeding and hybridization in farm animals. 3 hours (3 class). PR. ANSC 103 or COI (1,2)
BIO 125	Principles of Cell and Molecular Biology Techniques (3). Theoretical bases of standard techniques in cell and molecular biology with emphasis on approaches to research problems on gene expression at the cell and molecular levels. 3 hours (3 class). PR. BIO 101 (1,2)



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BIO/ENT 137	Insect Genetics (3). Genetic concepts and mechanisms in insects, and their application in taxonomy, pest management, and genetic improvement of beneficial species. 5 hrs (2 class, 3 lab). PR. ENT 101 and BIO 30 or COI and CHEM 40. (1,2)
BIO 139	Human Genetics (3). Physical and molecular bases of genetics of human traits, the application of DNA technology in human biology, and its implications to biosocial issues. 3 hrs (class). PR. BIO 130a. (1)
BIO 190	Special Problems (1-3). (May be taken twice provided that the total number of units to be credited to the student's program will not exceed 4 units.)(1,2,M)
BIO 191	Special Topics (1-3). (May be taken twice provided that the total number of units to be credited to the student's program will not exceed 4 units). (1,2)
BOT 20	Elementary Plant Physiology (3). Photosynthesis, respiration, nutrition, water relations, transport of materials, and growth of plants. 5 hrs (2 class, 3 lab). PR. BOT 1 or BIO 2 or BIO 3 and CHEM 16 or CHEM 15. (1,2)
BOT/HORT 132	Plant Growth (3). The nature and processes of growth in plants, including the role played in the process by phytohormones. 5 hrs (2 class, 3 lab). PR. BOT 20. (1,2)
HORT 133	Plant Tissue Culture (3). Principles and Practices in the In Vitro Culture of Plants. 5 hrs (2 class, 3 lab). PR. BOT 20 or COI (2)
CHEM 162	Plant Biochemistry (3). Metabolic processes in plant systems. 3 hrs (class). PR. CHEM 160 or CHEM 161. (2)
MCB 102	General Virology (3).The physical, chemical, and biological properties of plant, animal, and bacterial viruses. 3 hrs (class). PR. MCB 11. (1,2)
MCB 103	Introductory Medical Microbiology (3). The role and control of medically important microorganisms in human disease development. 3 hrs (class). PR. MCB 11. (1,2)
MCB 120	Microbial Physiology (3). Physiological processes in microorganisms including a study of structure, energy production, macromolecular biosynthesis, nutrition, and growth. 3 hrs (class). PR. MCB 11 and CHEM 160. (1,2)
MCB 130	Microbial Genetics (4). The principles of heredity in microbial systems and their applications in microbiology and molecular biology. 8 hrs (2 class, 6 lab). PR. MCB 101 and BIO 101 or COI. (1,2)

Microbiology Major Courses

MCB 101	Microbial Identification Techniques (3). Principles and techniques for the morphological, cultural, and physiological characterization of selected groups of microorganisms. 7 hours (1 class, 6 lab). PR. MCB 11. (1,2)
MCB 102	General Virology (3).The physical, chemical, and biological properties of plant, animal, and bacterial viruses. 3 hrs (class). PR. MCB 11. (1,2)
MCB 103	Introductory Medical Microbiology (3). The role and control of medically important microorganisms in human disease development. 3 hrs (class). PR. MCB 11. (1,2)



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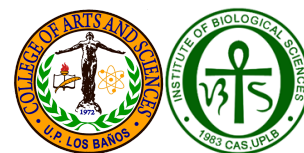
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MCB 120	Microbial Physiology (3). Physiological processes in microorganisms including a study of structure, energy production, macromolecular biosynthesis, nutrition, and growth. 3 hrs (class). PR. MCB 11 and CHEM 160. (1,2)
MCB 130	Microbial Genetics (4). The principles of heredity in microbial systems and their applications in microbiology and molecular biology. 8 hrs (2 class, 6 lab). PR. MCB 101 and BIO 101 or COL. (1,2)
MCB 150	Microbial Ecology (3). An introduction to the basic principles of microbial ecology; interrelationships of bacteria, fungi, algae, and protozoa in natural systems. 5 hrs (2 class, 3 lab). PR. MCB 11. (1,2)
MCB 180	Introductory Food Microbiology (3). An introduction to the microbiological aspects of food processing, preservation, spoilage and quality control; food-borne microorganisms of public health importance. 5 hrs (2 class, 3 lab). PR. MCB 11. (1,2)
MCB 181	Dairy Microbiology (3). Microorganisms in milk and milk products, their growth, destruction and utilization, and methods in microbiological quality control. 5 hrs (2 class, 3 lab). PR. MCB 11. (2)
MCB 182	Industrial Microbiology (3). Microorganisms, principles, and processes involved in industrial fermentation. 3 hrs (class). PR. MCB 11 and CHEM 160. (1,2)
MCB 182.1	Industrial Microbiology Laboratory (2). Techniques in industrial fermentation. 6hrs (lab). PR. MCB 101 and MCB 182. (can be taken concurrently with MCB 182). (1)
PPTH 104	General Mycology (3). Morphology, life cycles and taxonomy of fungi. 5 hrs (2 class, 3 lab). PR. None. (1,2)
BIO 130a	Advanced Genetics I (3). The nature and behavior of the genetic material as expressed in the development of the individual. 3 hours (3 class). PR. BIO 30. (1,2)
BIO 138	Molecular Genetics (3). The nature, functions and interactions of molecules in heredity; the molecular basis of certain biological phenomena in relation to the genetic material. 3 hrs (class). PR. BIO 101. (1)
BOT 101	Phycology (3). Classification, ecology, morphology, physiology, and economic importance of algae. 5 hrs (2 class, 3 lab). PR. BOT 1 or BIO 2 or BIO 3. (2)
FST 166	Food Hygiene and Sanitation (3). Fundamentals of food hygiene and evaluation of sanitation in food processing and food service establishment. 5 hrs (2 class, 3 lab). PR. MCB 11. (2)
PPTH 103	Introductory Phytobacteriology (3). Nature and biology of bacterial pathogens of plants; their classification, life cycles in relation to disease development, host physiological responses to infection, ecology, and control. 5 hrs (2 class, 3 lab). PR. CRPT 1 or MCB 11. (1,2)
PPTH 115	Introductory Plant Virology (3). Nature of plant viruses and symptoms of diseases produced; principles and techniques of transmission; purification, serology, and electron microscopy. 5 hrs (2 class, 3 lab). PR. CRPT 1 or MCB 11. (1,2)
VMCB 122	Veterinary Bacteriology and Mycology (3). Bacteria and fungi of veterinary importance with emphasis on their pathogenicity, epidemiology and laboratory diagnosis. 5 hrs (2 class, 3 lab). PR. VMCB 121. (2)



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VMCB 123	Veterinary Virology (2). Viruses and rickettsiae of veterinary importance with emphasis on their pathogenicity, epidemiology and laboratory diagnosis. 2 hrs (class). PR. VMCB 121. (2)
VMCB 124	Fundamentals of Immunology (2). Principles of immunology and basic laboratory techniques. 2 hrs (class). PR. COI. (1)
VPH 121	Epidemiology (3). Principles and methods of epidemiology. 5 hrs (2 class, 3 lab). PR. VMCB 121. (1)
BIO 125	Principles of Cell and Molecular Biology Techniques (3). Theoretical bases of standard techniques in cell and molecular biology with emphasis on approaches to research problems on gene expression at the cell and molecular levels. 3 hours (3 class). PR. BIO 101 (1,2)
BIO 134	Introduction to Genomics and Bioinformatics (3). Structure, organization and function of genomes of selected organisms; techniques in genome analysis and bioinformatics. 3 hrs (3 class). PR. BIO 101. (1,2)

Plant Biology Major Courses

BOT 20	Fundamentals of Plant Physiology (3). Photosynthesis, respiration, nutrition, water relations, transport of materials, and growth of plants. 5 hours (2 class, 3 lab). PR. None (1,2)
BOT 110	Morphology and Anatomy of Plants (3). Structure, function, development, adaptation, and phylogenetic relationships of vascular plants. 5 hours (2 class, 3 lab). PR. None. (1)
BOT 140	Systematics of the Spermatophytes (3). The identification, nomenclature, and classification of the principal families of seedplants, with emphasis on their geographic distribution and economic importance. 7 hours (1 class, 6 lab). PR. COI. (1,2)
BOT 152	Phytogeography (3). Principles, patterns, causes, and barriers of plant distribution and migration on land evolution of world vegetations and floristic provinces. 3 hrs (class). PR. BOT 150 or COI. (2)
BOT 101	Phycology (3). Classification, ecology, morphology, physiology, and economic importance of algae. 5 hours (2 class, 3 lab). PR. None (2)
BOT 111	Bryophytes and Vascular Cryptogams (3). Structure, development, and systematics of bryophytes, psilopsids, lycopods, sphenopsids and selected ferns. 3 hrs (3 lab). PR. COI. (2)
BOT 120	Advanced Plant Physiology (3). Plant function, behavior, and metabolism of primary and secondary plant products and physiological ecology. 5 hours (2 class, 3 lab). PR. BOT 20 or COI. (2)
BOT/HORT 131	Inorganic Plant Nutrition (3). Principles of mineral nutrition of higher plants. 5 hours (2 class, 3 lab). PR. BOT 20. (1, 2)
BOT/HORT 132	Plant Growth (3). The nature and processes of growth in plants, including the role played in the process by phytohormones. 5 hours (2 class, 3 lab). PR. BOT 20. (1, 2)



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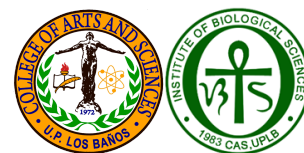
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BOT 142	Economic Botany (3). Origin, history, botanical relationship and uses of plants of the Philippines, on emphasis on wild species of economic value. 5 hours (2 class, 3 lab). PR. BOT 14 or COI. (1, 2)
BOT 150	Plant Ecology (3). Principles of plant environment interactions in relation to distribution, structure and functioning of plant communities. 5 hrs (2 class, 3 lab). PR. BOT 14 or COI. (2)
BOT 191	Special Topics (1-3). (May be taken twice provided that the total number of units to be credited to the student's program will not exceed 4 units). (1,2)
BOT 192	Plant Histochemistry (3). Histochemical analysis of plants, with special emphasis on medicinal, wild food and pesticidal plants, and their active constituents. 5 hrs (2 class, 3 lab). PR. CHEM 40 or COI and BOT 110. (1)
BIO 151	Environmental Management (3). Principles of environmental management; technological development and activities affecting the environment and pertinent case studies. 3 hours (3 class). PR. BIO 150 or COI. (2)
BIO 159	Conservation Biology in the Tropics (3). Conservation and values of tropical biological diversity, threats, and pertinent policies, methods and strategies in conserving biodiversity. 3 hrs (class). PR. BIO 150 or COI. (2)
BIO 180	Biological Microtechnique (3). Collection and preparations of whole mounts and tissue sections of plants and animals; preservation and storage. 7 hrs (1 class, 6 lab). PR. CHEM 40.1. (2,M)
BIO 192	Museum-Herbarium Curatorship (3). Methods and procedures pertaining to the establishment, maintenance, and management of museums and herbaria; collection and preservation of biological materials for research and reference. PR. BOT 140+ZOO 140 or BOT 140 or ZOO 140. (1,2)
CHEM 162	Plant Biochemistry (3). Metabolic processes in plant systems. 3 hrs (class). PR. CHEM 160 or CHEM 161. (2)
PPTH 104	General Mycology (3). Morphology, life cycles and taxonomy of fungi. 5 hrs (2 class, 3 lab). PR. None. (1,2)
CRSC 105 (formerly AGR 50)	Principles of Plant Breeding (3). Development, Evaluation and Maintenance of Improved Crop Plants. 3 hrs (1.5 class) PR. BIO 30 (1,2)
AGR 141	Field Crop Physiology (3). Physiological concepts and processes and their relationship with crop yield, with emphasis on major field crop. 5 hrs (2 class, 3 lab). PR. CRSC 2 or BOT 20 (1,2)
HORT 133 (formerly HORT 113)	Plant Tissue Culture (3). Principles and practices in the in vitro culture of plants. 5 hrs (2 class, 3 lab). PR. BOT 20 or COI. (2)
AGRI 31 (formerly CRSC 1)	Fundamentals of Crop Science I (3). Introduction to crop science and basic concepts in crop production. 5 hrs (2 class, 3 lab). PR. None (1,2)
AGRI 51 (formerly SOIL 1)	Principles of Soil Science (3). Nature, properties and management of Soils. 5 hrs (2 class, 3 lab). PR. None (1,2)



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SOIL 150	Soil Fertility (3). Soil nutrient elements and their availability in relation to soil properties, evaluation of soil fertility status, use of fertilizers and other soil amendments. 3 hrs (class). PR. SOIL 1 or COI. (1,2)
SFI 123	Fundamentals of Agroforestry (3). Principles and practices of agroforestry; managing agroforestry projects. 5 hrs (2 class, 3 lab). PR. COI. (1,2)

Systematics Major Courses

BOT 140	Systematics of the Spermatophytes (3). The identification, nomenclature, and classification of the principal families of seed plants, with emphasis on their geographic distribution and economic importance. 7 hours (1 class, 6 lab). PR. COI. (1,2)
ZOO 140	Animal Taxonomy (3). Principles of animal taxonomy; taxonomic literature and catalogs, with special reference to Philippine fauna. 5 hours (2 class, 3 lab). PR. None (1,2)
BIO 152	Biogeography (3). Principles and applications of biogeography. 3 hrs (class). PR. BIO 150. (1)
MCB 101	Microbial Identification Techniques (3). Principles and techniques for the morphological, cultural, and physiological characterization of selected groups of microorganisms. 7 hours (1 class, 6 lab). PR. MCB 11. (1,2)
BIO 192	Museum-Herbarium Curatorship (3). Methods and procedures pertaining to the establishment, maintenance, and management of museums and herbaria; collection and preservation of biological materials for research and reference. PR. BOT 140+ZOO 140 or BOT 140 or ZOO 140. (1,2)
BIO 180	Biological Microtechniques (3). Collection and preparations of whole mounts and tissue sections of plants and animals; preservation and storage. 7 hrs (1 class, 6 lab). PR. CHEM 40.1. (2,M)
BIO 130a	Intermediate Genetics I (3). The nature and behavior of the genetic material as expressed in the development of the individual. 3 hrs (class). PR. BIO 30. (1,2)
BIO130b	Intermediate Genetics II (3). The nature and behavior of the genetic material as expressed in the population. 3 hrs (class). PR. BIO 30. (2)
BIO 131	Cytogenetics (3). The chromosomal bases of heredity; variations in chromosome structure and number; hybridization; apomixis and chromosomes in sex determination. 5 hrs (2 class, 3 lab). PR. BIO 30. (2)
BIO 134	Introduction to Genomics and Bioinformatics (3). Structure, organization and function of genomes of selected organisms; techniques in genome analysis and bioinformatics. 3 hrs (3 class). PR. BIO 101. (1,2)
BIO 137 / ENT 137	Insect Genetics (3). Genetic concepts and mechanisms in insects, and their application in taxonomy, pest management, and genetic improvement of beneficial species. 5 hrs (2 class, 3 lab). PR. ENT 101 and BIO 30 or COI and CHEM 40. (1,2)
BIO 154	Cave Ecology (3). Cave ecosystems, biodiversity, and adaptations of organisms. 5 hrs (2 class, 3 lab). PR. BIO 150 or COI. (2)



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BIO 159	Conservation Biology in the Tropics (3). Conservation and values of tropical biological diversity, threats, and pertinent policies, methods and strategies in conserving biodiversity. 3 hrs (class). PR. BIO 150 or COI. (2)
BIO 190	Special Problems (1-3). (May be taken twice provided that the total number of units to be credited to the student's program will not exceed 4 units.)(1,2,M) Special Topics (1-3). (May be taken twice provided that the total number of units to be credited to the student's program will not exceed 4 units). (1,2)
BIO 191	Special Problems (1-3). (May be taken twice provided that the total number of units to be credited to the student's program will not exceed 4 units.)(1,2,M) Special Topics (1-3). (May be taken twice provided that the total number of units to be credited to the student's program will not exceed 4 units). (1,2)
BOT 101	Phycology (3). Classification, ecology, morphology, physiology, and economic importance of algae. 5 hrs (2 class, 3 lab). PR. BOT 1 or BIO 2 or BIO 3. (2)
BOT 110	Morphology and Anatomy of Plants (3). Structure, function, development, adaptation, and phylogenetic relationships of vascular plants. 5 hours (2 class, 3 lab). PR. None. (1)
BOT 111	Bryophytes and Vascular Cryptogams (3). Structure, development, and systematics of bryophytes, psilopsids, lycopods, sphenopsids and selected ferns. 3 hrs (3 lab). PR. COI. (2)
BOT 150	Plant Ecology (3). Principles of plant environment interactions in relation to distribution, structure and functioning of plant communities. 5 hrs (2 class, 3 lab). PR. BOT 14 or COI. (2)
BOT 152	Phytogeography (3). Principles, patterns, causes, and barriers of plant distribution and migration on land evolution of world vegetations and floristic provinces. 3 hrs (class). PR. BOT 150 or COI. (2)
ENT 101	General Entomology (3). Introduction to insect adaptations; structural, functional and developmental systems; taxonomy and ecology. 5 hrs (2 class, 3 lab). PR. BIO 2 or BIO 3 or ZOO 1. (1,2)
ENT 110	Insect Morphology (3). Phylogenetic study of the external and internal structures of insects and other arthropods. 7 hrs (1 class, 6 lab). PR. ENT 101 or COI. (1,2)
ENT 140	Insect Taxonomy (3). Classification, biology and evolutionary relationships among insect taxa; taxonomic methods; curating insect collections. 7 hrs (1 class, 6 lab). PR. ENT 110 or COI. (2)
ENT 146	Acarology (3). The taxonomy and evolutionary relationships of the Acari; their habitats, trophic functions, life cycles, behavior and distribution. 5 hrs (2 class, 3 lab). PR. ENT 101 and COI. (2)
ENT 151	Insect Ecology (3). Dynamics of insect population, specifically their abundance, regulation, distribution and mensuration; community theories pertaining to natural control of pest species. 5 hrs (2 class, 3 lab). PR. ENT 140 or COI. (2)
ENT 195	Entomological Techniques (3). Principles of insect micrology and general insect rearing methods. 7 hrs (1 class, 6 lab). PR. ENT 101 or COI. (2)
FBS 21	Taxonomy of Forest Plants (4). Identification, classification, nomenclature, phenology, geographical distribution and economic importance of woody and



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	non-woody plants found in the Philippine forest. 8 hrs (2 class, 6 lab/field). PR. BOT 1. (1,2)
FBS 101	Forest Biodiversity (3). Survey of genetic resources and types of ecosystems in the tropical forest, with emphasis on Philippine forests. 5 hrs (2 class, 3 lab). PR. BOT 1 and ZOO 1, or BIO 1. (1,2)
FBS 126	Forest Entomology (3). Biology and ecology of insects associated with forest trees and forest products; laboratory rearing methods and field work. 7 hrs (1 class, 6 lab). PR. ZOO 1. (2)
FBS 140	Forest Mycology (3). A comprehensive survey of fungi affecting forest trees, including the morphology, taxonomy and physiology of fungi. 5 hrs (2 class, 3 lab). PR. BOT 1. (1)
MCB 102	General Virology (3). The physical, chemical, and biological properties of plant, animal, and bacterial viruses. 3 hrs (class). PR. MCB 11. (1,2)
PPTH 104	General Mycology (3). Morphology, life cycles and taxonomy of fungi. 5 hrs (2 class, 3 lab). PR. None. (1,2)
WLDL 101	Introduction to Philippine Wildlife (3). Survey of Philippine flora and fauna; biology and ecology of selected species. 5 hrs (2 class, 3 lab). PR. None (1)
ZOO 142	Invertebrate Zoology (3). Systematics, ecology, and evolutionary relationships of invertebrates. 5 hrs (2 class, 3 lab). PR. None. (1,2)
ZOO 145	Herpetology (3). Taxonomy of Philippine reptiles and amphibians; biology and ecology of important species; collection and preparation for scientific study. 7 hrs (1 class, 6 lab). PR. None. (1)
ZOO 146	Ornithology (3). Taxonomy of Philippine birds; biology and ecology of important species; collection and preparation for scientific study. 7 hrs (1 class, 6 lab). PR. None. (2)
ZOO 148	Mammalogy (3). Taxonomy of Philippine mammals; biology and ecology of important species; collection and preparation for scientific study. 7 hrs (1 class, 6 lab). PR. None. (2)
ZOO 150	Animal Ecology (3). Fundamental factors of the environment, population dynamics, community concepts and principal habitats of animals. 7 hrs (1 class, 6 lab). PR. None. (1,2)
ZOO 151	Marine Zoology (5). Taxonomy and ecology of marine invertebrates and vertebrates; collection, preservation, and storage of marine ecological specimens. 11 hrs (2 class, 9 lab). PR. BIO 150 or ZOO 150. (M)
ZOO 152	Freshwater Zoology (3). Ecology and taxonomy of the freshwater fauna. 7 hrs (1 class, 6 lab). PR. BIO 150 or ZOO 150. (1,2)
ZOO 155	General Limnology (3). Origin, classification, and structures of inland waters; their physical, chemical, and biological processes. 3 hrs (class). PR. COI. (1)
ZOO 160	General Macalogy (3). Morpho-taxonomy, ecology, and physiology of different molluscan classes, with emphasis on economically and medically important species. 5 hrs (2 class, 3 lab). PR. BIO 150 or ZOO 150. (1)
ZOO 173	Introduction to Parasitology (3). Fundamental principles of parasitology, with reference to man and other animals. 5 hrs (2 class, 3 lab). PR. None. (1,2)



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ZOO 180	Ichthyology (3). Basic fish anatomy, functional morphology, and physiology; taxonomy of important fishes. 5 hrs (2 class, 3 lab). PR. None. (2)
BIO 125	Principles of Cell and Molecular Biology Techniques (3). Theoretical bases of standard techniques in cell and molecular biology with emphasis on approaches to research problems on gene expression at the cell and molecular levels. 3 hours (3 class). PR. BIO 101 (1,2)
MCB 120	Microbial Physiology (3). Physiological processes in microorganisms including a study of structure, energy production, macromolecular biosynthesis, nutrition, and growth. 3 hrs (class). PR. MCB 11 and CHEM 160. (1,2)
MCB 130	Microbial Genetics (4). The principles of heredity in microbial systems and their applications in microbiology and molecular biology. 8 hrs (2 class, 6 lab). PR. MCB 101 and BIO 101 or COI. (1,2)
ZOO 113	Comparative Vertebrate Anatomy (5). Comparative and phylogenetic study of vertebrate organ systems; their development, structures, and functions. 9 hrs (3 class, 6 lab). PR. ZOO 14. (1,2)

Wildlife Biology Major Courses

WLDL 101	Introduction to Philippine Wildlife (3). Survey of Philippine flora and fauna; biology and ecology of selected species. 5 hrs (2 class, 3 lab). PR. None (1)
WLDL 150	Wildlife Ecology (3). Ecological factors that influence abundance in the tropical ecosystems. 3 hrs (3 class). PR. WLDL 101. (2)
ZOO 113	Comparative Vertebrate Anatomy (5). Comparative and phylogenetic study of vertebrate organ systems; their development, structures, and functions. 9 hrs (3 class, 6 lab). PR. ZOO 14. (1,2)
BIO 159	Conservation Biology in the Tropics (3). Conservation and values of tropical biological diversity, threats, and pertinent policies, methods and strategies in conserving biodiversity. 3 hrs (class). PR. BIO 150 or COI. (2)
BIO 180	Biological Microtechnique (3). Collection and preparations of whole mounts and tissue sections of plants and animals; preservation and storage. 7 hrs (1 class, 6 lab). PR. CHEM 40.1. (2,M)
WLDL 105	Principles of Wildlife Management (3). Interrelationships of wildlife biology, habitat ecology, and population dynamics as they affect management problems. 3 hrs (class). PR. WLDL 101 or COI. (1)
WLDL 195	Techniques of Wildlife Management (3). Field and laboratory method used in wildlife management and research; including identification of signs, population census, food habits, trapping, transplanted, collection and preservation of specimens. 7 hrs (1 class, 6 lab). PR. WLDL 105. (2)
ZOO 115	Animal Histology (3). Detailed study of types, structure, and functions of vertebrate tissues, selected glands and organs; principle of histochemistry. 5 hrs (2 class, 3 lab). PR. ZOO 113. (1,2)



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INSTITUTE OF BIOLOGICAL SCIENCES

ZOO 117	Developmental Zoology (3). Patterns of growth, differentiation and morphogenesis from molecule to organism; control mechanisms of development; animal life cycles. 5 hrs (2 class, 3 lab). PR. BIO 101. (1,2)
ZOO 120	Animal Physiology (5). Mechanisms involved in the functional processes of animals; sources of energy; its distribution and utilization; environmental relations; nervous integration and animal activity; reproduction and development. 9 hrs (3 class, 6 lab). PR. ZOO 113 and CHEM 160. (1,2)
ZOO 122	Animal Behavior (3). Behavior patterns of animals, their nervous and endocrine control mechanisms; evolutionary significance of behavior adaptations. 5 hrs (2 class, 3 lab). PR. ZOO 14. (1)
ZOO 127	Animal Toxinology (3). Sources, modes of action and applications of animal toxins. 3 hrs (3 class). PR. CHEM 160. (2)
ZOO 140	Animal Taxonomy (3). Principles of animal taxonomy; taxonomic literature and catalogs, with special reference to Philippine fauna. 5 hours (2 class, 3 lab). PR. None (1,2)
ZOO 145	Herpetology (3). Taxonomy of Philippine reptiles and amphibians; biology and ecology of important species; collection and preparation for scientific study. 7 hrs (1 class, 6 lab). PR. None. (1)
ZOO 146	Ornithology (3). Taxonomy of Philippine birds; biology and ecology of important species; collection and preparation for scientific study. 7 hrs (1 class, 6 lab). PR. None. (2)
ZOO 148	Mammalogy (3). Taxonomy of Philippine mammals; biology and ecology of important species; collection and preparation for scientific study. 7 hrs (1 class, 6 lab). PR. None. (2)
ZOO 149	Biology of Marine Mammals (3). Life history, systematics ecology, and conservation of marine mammals of the world, with emphasis on those found within the Philippine waters. 3 hrs (class). PR. COI. (1)
ZOO 153	Marine Animal Ecology (3). Adaptations of marine animals and their interactions with the environment in different marine habitats. 3 hrs (class). PR. BIO 150. (2)
ZOO 173	Introduction to Parasitology (3). Fundamental principles of parasitology, with reference to man and other animals. 5 hrs (2 class, 3 lab). PR. None. (1,2)
ZOO 180	Ichthyology (3). Basic fish anatomy, functional morphology, and physiology; taxonomy of important fishes. 5 hrs (2 class, 3 lab). PR. None. (2)
ZOO 191	Special Topics (1-3). (May be taken twice provided that the total number of units to be credited to the student's program will not exceed 4 units.) (1,2)

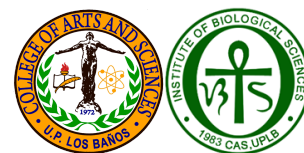
Zoology Major Courses

ZOO 113	Comparative Vertebrate Anatomy (5). Comparative and phylogenetic study of vertebrate organ systems; their development, structures, and functions. 9 hrs (3 class, 6 lab). PR. ZOO 14. (1,2)
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BIO 159	Conservation Biology in the Tropics (3). Conservation and values of tropical biological diversity, threats, and pertinent policies, methods and strategies in conserving biodiversity. 3 hrs (class). PR. BIO 150 or COI. (2)
BIO 180	Biological Microtechnique (3). Collection and preparations of whole mounts and tissue sections of plants and animals; preservation and storage. 7 hrs (1 class, 6 lab). PR. CHEM 40.1. (2,M)
ZOO 91	Zoological Techniques (3). Collection, preservation, mounting, and slide preparation of zoological material. 7 hrs (1 class, 6 lab). PR. None. (1,2)
ZOO 115	Animal Histology (3). Detailed study of types, structure, and functions of vertebrate tissues, selected glands and organs; principle of histochemistry. 5 hrs (2 class, 3 lab). PR. ZOO 113. (1,2)
ZOO 122	Animal Behavior (3). Behavior patterns of animals, their nervous and endocrine control mechanisms; evolutionary significance of behavior adaptations. 5 hrs (2 class, 3 lab). PR. ZOO 14. (1)
ZOO 127	Animal Toxinology (3). Sources, modes of action and applications of animal toxins. 3 hrs (3 class). PR. CHEM 160. (2)
ZOO 140	Animal Taxonomy (3). Principles of animal taxonomy; taxonomic literature and catalogs, with special reference to Philippine fauna. 5 hours (2 class, 3 lab). PR. None (1,2)
ZOO 142	Invertebrate Zoology (3). Systematics, ecology, and evolutionary relationships of invertebrates. 5 hrs (2 class, 3 lab). PR. None. (1,2)
ZOO 145	Herpetology (3). Taxonomy of Philippine reptiles and amphibians; biology and ecology of important species; collection and preparation for scientific study. 7 hrs (1 class, 6 lab). PR. None. (1)
ZOO 146	Ornithology (3). Taxonomy of Philippine birds; biology and ecology of important species; collection and preparation for scientific study. 7 hrs (1 class, 6 lab). PR. None. (2)
ZOO 148	Mammalogy (3). Taxonomy of Philippine mammals; biology and ecology of important species; collection and preparation for scientific study. 7 hrs (1 class, 6 lab). PR. None. (2)
ZOO 149	Biology of Marine Mammals (3). Life history, systematics ecology, and conservation of marine mammals of the world, with emphasis on those found within the Philippine waters. 3 hrs (class). PR. COI. (1)
ZOO 150	Animal Ecology (3). Fundamental factors of the environment, population dynamics, community concepts and principal habitats of animals. 7 hrs (1 class, 6 lab). PR. None. (1,2)



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ZOO 151	Marine Zoology (5). Taxonomy and ecology of marine invertebrates and vertebrates; collection, preservation, and storage of marine ecological specimens. 11 hrs (2 class, 9 lab). PR. BIO 150 or ZOO 150. (M)
ZOO 152	Freshwater Zoology (3). Ecology and taxonomy of the freshwater fauna. 7 hrs (1 class, 6 lab). PR. BIO 150 or ZOO 150. (1,2)
ZOO 153	Marine Animal Ecology (3). Adaptations of marine animals and their interactions with the environment in different marine habitats. 3 hrs (class). PR. BIO 150. (2)
ZOO 155	General Limnology (3). Origin, classification, and structures of inland waters; their physical, chemical, and biological processes. 3 hrs (class). PR. COI. (1)
ZOO 160	General Macalogy (3). Morpho-taxonomy, ecology, and physiology of different molluscan classes, with emphasis on economically and medically important species. 5 hrs (2 class, 3 lab). PR. BIO 150 or ZOO 150. (1)
ZOO 173	Introduction to Parasitology (3). Fundamental principles of parasitology, with reference to man and other animals. 5 hrs (2 class, 3 lab). PR. None. (1,2)
ZOO 180	Ichthyology (3). Basic fish anatomy, functional morphology, and physiology; taxonomy of important fishes. 5 hrs (2 class, 3 lab). PR. None. (2)
ZOO 185	Introduction to Aquaculture (3). Basic principles and practices of aquaculture. 3 hrs (class). PR. None. (1,2)
ZOO 191	Special Topics (1-3). (May be taken twice provided that the total number of units to be credited to the student's program will not exceed 4 units.) (1,2)