UNIVERSITY OF THE EAST
Manila

DEPARTMENT OF BIOLOGICAL SCIENCES

BS BIOLOGY YEAR LEVEL COMPETENCIES			
YEAR	**SUBJECT/ CODE**	**SUBJECT TITLE**	**COMPETENCIES** The students will demonstrate the ability to:
FIRST	AZO 111	General Zoology (Lecture)	1. Identify and classify animals in the animal kingdom according to their group. 2. Compare the lower forms of animals with the higher forms. 3. Explain the basic anatomic terms in the study of gross anatomy of vertebrates. 4. Identify animals as to Phylum, Class Order, Family, Genus, and Species. 5. Show appreciation of the benefits by man from advances/progress made in the fields of science. 6. Develop awareness on the importance of research in scientific fields.
	AZO 112	General Zoology (Laboratory)	7. Formulate statement to explain events, which occur during laboratory investigations. 8. Operate common laboratory apparatuses and instruments properly. 9. Demonstrate correct laboratory techniques. 10. Assemble laboratory set-ups for the experiments. 11. Gather and record data in systematic manner. 12. Draw conclusions from drawn observations and gathered data. 13. Describe and explain fully the basic microscope and anatomical structure of vertebrates specially the frog
	ABO 111	General Botany (Lecture)	14. Develop critical and discriminating attitude in their researches with regards to plant science 15. Apply the laws that govern plants' survival and their continuous existence, the importance of these to the environment as a whole 16. Understand fully the external and internal anatomy of the plants

			17. Analyze the different physiological activities governing plant life 18. Develop critical attitudes on the different morphological characteristics of plant leaf, flowers, etc. 19. Demonstrate the different physiological processes occurring in plants and to be able to apply them in their daily activities.
	ABO 112	General Botany (Laboratory)	20. Evaluate the experiments and record their observations accurately and to arrive at conclusion based on what they have actually seen. 21. Perform basic laboratory instruments which are tools in learning. 22. Follow laboratory instructions which are important in this type of discipline. 23. Apply the simple techniques in the preparation, collection and preservation of specimens.
SECOND	ABO 222	Earth's Processes and Biological System	24. Explain the composition and structure of the earth. 25. Discuss the universal laws and relate its significance to man and the environment. 26. Differentiate the different layers of the earth. 27. Explain the different motions of the earth and the various natural phenomena associated with them in relation to biological systems 28. Participate in the effort to prevent destruction of terrestrial and aquatic resources including the effects of pollution.
	AZO 113	Comparative Anatomy and Phylogeny of Vertebrates (Lecture)	29. Analyze the similarities and differences of the body parts of vertebrates 30. Construct a diagram showing the phylogeny and interrelationship of different vertebrates 31. Compare and describe the morphology of the different body structures of different vertebrates 32. Critically discuss the vertebrate history and generalize the data discussed 33. Understand the anatomical relationship among vertebrates and the development of the organs and organ systems
	AZO 114	Comparative Anatomy and Phylogeny of Vertebrates (Laboratory)	34. Perform laboratory dissection on representative vertebrates (e.g. preserved shark and cat) 35. Make an accurate and precise observations of animal specimens 36. Perform proper animal handling practices 37. Practice responsible laboratory techniques and

			procedures
SECOND	AZO 311	Animal Systematics	38. Identify major animal phyla and be able to classify invertebrates at least down to class level even by mere observation of morphological characteristics. 39. Acquire a working knowledge regarding basic characteristics of the different animal phyla and class. 40. Develop critical thinking in comparing and contrasting these basic characteristics of the different animal groups for the purpose of classification and identification. 41. Understand and appreciate the concept of "unity in diversity" in the living world. 42. Develop respect for all life forms and work for their preservation. 43. Explain man's place in the evolution of life and his responsibility in the preservation of the members of this hierarchy. 44. Develop the skills necessary for the classification and identification of representatives of the different animal phyla. 45. Perform basic laboratory techniques for the proper handling of specimens.
	ABI 321	Ecology	46. Identify the components in the environment, both biotic and abiotic and the levels or organization in the field of Ecology 47. Explain the concepts and principles of Ecology that governs the natural environment 48. Describe the physical factors in the aquatic and terrestrial environment 49. Cite examples of species interactions occurring in a biotic community 50. Observe and analyze the behavior of an organism (whether plant or animal) in response to various physico-chemical conditions 51. Perform basic sampling techniques used in ecology in field settings to assess the condition of a particular ecosystem 52. Perform laboratory analysis for abiotic and biotic components of the environment
	ABO 223	Plant Physiology	53. Explain the principles of plant physiology with emphasis on translocation, metabolism, growth and development of plants 54. Discuss and apply the principles learned in plant physiology particularly to biological research 55. Understand and discuss the physiology of plants example; their function under normal condition and as

			well as during stressed environment 56. Appreciate the dynamic nature of plant activity 57. Perform laboratory instruments which are tools in learning.
THIRD	ABI 421	Fundamentals of Genetics	58. Explain the basic principles of heredity and variation 59. Think logically and relate the principles of genetics in biological research
	ABO 221	Morphoanatomy of Lower Plants	60. Discuss and explain the basic concepts and principles of plant systematics focusing from lower to higher forms. 61. Apply concepts and principles of systematics in various aspects and related fields such as biodiversity, conservation and geography
	ABI 323	General Microbiology (Lecture)	62. Describe the cultural, morphological, physiological and biochemical characteristics underlying microbial life 63. Identify the relationships of microorganisms with plants and animals, their roles in diseases, and in immunity. 64. Outline the basic concepts of epidemiology and methods of identifying causes of infectious diseases. 65. Relate microbial actions as they shape other fields such as agriculture, environment, chemical, food and health industries. 66. Describe the various roles of microorganisms in biotechnology. 67. Enumerate some common disease-causing pathogens as well as their classification, structure, physiology, biochemical properties, mechanism of pathogenesis, transmission and management, thereby helping them to assess communicable diseases. 68. Explain the basic foundation in the understanding of disease occurrence associated with the different bodily systems.
	ABI 324	General Microbiology (Laboratory)	69. Apply the basic laboratory techniques and principles employed in studying microorganisms.
	ABI 412	Biological Techniques	70. Perform biological techniques with a comprehensive understanding of every step in the procedure. 71. Apply biological techniques in scientific research.
	ABI 411	Histology	72. Identify microscopic organizations, relationships and functions of cells, tissues and organs of the human body 73. Discuss the basic principles of histotechnology and perform basic histotechnological techniques 74. Correlate structure and function as a unifying theme of

			biological sciences
	AZO 412	Introduction to Parasitology	75. Discuss the biology of parasites that infect man, focusing on the more common parasites in the Philippines. 76. Discuss the different stages, morphology, epidemiology, pathology, symptomatology, diagnosis and prevention of the different parasites. 77. Identify the various pathological effects brought about by parasitosis. 78. Differentiate morphological characteristics of parasites. 79. Cite the value of hygiene in everyday living. 80. Examine the mode of transmission of parasites from domestic as well as wild animals to man. 81. Identify parasites and stages in its life cycle using appropriate technical diagnostic procedure. 82. Identify the morphology and anatomy of common parasites through dissection.
	ABI 413	Marine Biology (Lecture)	83. Critically think researches with regards to marine science 84. Apply the laws that govern marine ecosystem particularly the ecology and diversity of marine life 85. Cite the importance of marine ecosystem to the entire process taking place in the biosphere
	ABI 414	Marine Biology (Laboratory)	86. Perform laboratory experiments in the field setting focusing on major communities such as the mangrove forest, seagrass beds, coral reef and the open ocean.
FOURTH	ABI 415	Cell and Molecular Biology	87. Discuss and explain the basic concepts and principles of cell and molecular biology 88. Discuss, analyze and distinguish various cellular, biochemical and physiological processes of the cell 89. Discuss the key concepts involved with the different cellular process 90. Develop sample experimental design applying the basic concepts and principles of cell and molecular biology 91. Discuss methods and techniques used to study cellular structures and their functions
	AZO 421	Animal Physiology (Lecture)	92. Analyze the processes and mechanisms of an organ and how these organs work together. 93. Comprehend how organs are regulated, controlled and affected by other physiological processes 94. Prove the limitations of science and its methods as applied to experimental animals.

FOURTH			95. Evaluate abnormalities resulting from an abnormal process, the immediate cause of abnormality and how these abnormalities can be prevented. 96. Detect and explain scientifically some physiological and pathological "changes" taking place in the body
	AZO 423	Animal Physiology (Laboratory)	97. Relate laboratory experience with their theoretical background by actual manipulation and handling of apparatus that illustrate basic physiological processes.
	AZO 422	Developmental Zoology	98. Give operational definitions of the basic concepts of embryology. 99. Explain the nature of the basic developmental processes. 100. State the different principles governing the development of the individual as a whole. 101. Discuss the factors which initiate and regulate the developmental processes. 102. Justify the processes of scientific inquiry through laboratory investigations. 103. Identify the famous zoologists and determine their worth in the present set-up. 104. Apply the scientific principles and natural laws and present situation and in their field of specialization.
	ABI 325	Biotechnology	105. Explain the general principles in biotechnology that by inserting, deleting, or substituting DNA segments, one can alter genes. 106. Understand the contributions of biotechnological products in the advancement of science and technology 107. Analyze the effect of altered genes on the offspring's success in the environment 108. Cite the significance of technologies to maintain, prolong and sustain life or terminate life; raise social, moral, ethical and legal issues 109. Identify the techniques in manipulating the genetic instructions of an organism to produce new characteristic 110. Relate the importance of biotechnology to health and economic improvement 111. Express alternative positions, clarification or elaboration on different processes used in biotechnology 112. Identify the different equipments used in the conduct of biological techniques
			113. Discuss the mechanisms of immune response and how

	ABI 324	Fundamentals of Immunology	it works in health and disease 114. Apply the immunological principles and procedures to biological research 115. Critically think and solve problems in immunology 116. Cite the importance of immunology to the field of study.
	ATW 498 & ATW 499	Undergraduate Thesis 1 & 2	117. Write a scholarly undergraduate thesis on a problem relevant to biological sciences
	ABI 422	Biology Practicum	118. Apply the previously or concurrently studied theories and techniques of biological sciences in a supervised environment