University of Management & Technology
School of Science
Department of Life Science

ZL-112 Biodiversity of Animals

Lecture Schedule	Wednesday & Saturday 12:30 PM -01:45 PM	**Semester**	Spring 2020
Pre-requisite	---	**Credit Hours**	4(3+1)
Instructor	Ms Nabiha Naeem	**Contact Moodle link**	nabiha.naeem@umt.edu.pk
Office	3S-37	**Office Hours**	See office window

Course Description

This course is an introduction to the diversity, evolution, structure and function of vertebrates, invertebrates and 'animal-like' protista. The main objective of this course is to demonstrate the major groups of animals and introduce the variety of relationships within, as well as between, these organisms

Expected Outcomes

Upon completion of this in-depth course, students will be able to learn:

1. Taxonomic characteristics and classification of each phylum
2. Concepts of evolutionary relationship of animal kingdom
3. Knowledge about animal kingdom, emphasizing their phylogenetic relationships and simple to complex mode of animal life

Textbook(s)

1. Miller, S.A., Harley, J.B. 2016. Zoology, 10th Ed. (International), Singapore: McGraw Hill.
2. Integrated Principles of Zoology, fourteenth edition
3. Hickman CP, Roberts LS, Keen SL, Larson A, I'Anson H, Eisenhour DJ

Grading Policy

- Quizzes 10%
- Assignment 10%
- Midterm: 25%
- Final Exam: 35%
- Lab 20%

Course Schedule

Week	Lecture #	TOPICS	Chapter Name
1	1 2	Introduction to Biodiversity Animal classification and phylogeny	Ch:7Animal Taxonomy, Phylogeny, and Organization
2	1 2	7.1 Taxonomy and Phylogeny A Taxonomic Hierarchy Nomenclature Molecular Approaches to Animal Systematics Domains and Kingdoms Animal Systematics 7.2 Patterns of Organization Symmetry other Patterns of Organization 7.3 Higher Animal Taxonomy	Ch:7Animal Taxonomy, Phylogeny, and Organization
3	1 2	Evolutionary Perspective of the Protists 8.2 Life within a Single Plasma Membrane Maintaining Homeostasis Reproduction 8.3 Symbiotic Lifestyles 8.4 Protists and Protozoan Taxonomy 8.5 Further Phylogenetic Considerations	Ch: 8 Animal-Like Protists: The Protozoa
4	1 2	9.1 Evolutionary Perspective Origins of Multicellularity, Animal Origins 9.2 Phylum Porifera Cell Types, Body Wall, and Skeletons, Water Currents and Body Forms, Maintenance Functions and Reproduction	Ch:9 Multicellular and Tissue Levels of Organization
5	1 2	9.3 Phylum Cnidaria The Body Wall and Nematocysts, Alternation of Generations, Maintenance Functions Reproduction Class Hydrozoa Class Staurozoa	Ch:9 Multicellular and Tissue Levels of Organization
6	1 2	Class Scyphozoa Class Cubozoa Class Anthozoa	Ch:9 Multicellular and Tissue Levels of Organization

		9.4 Phylum Ctenophora	
7	1 2	10.1 Evolutionary Perspective 10.2 Platyzoa: Phylum Platyhelminthes Class Turbellaria	Ch:10 The Smaller Lophotrochozoan Phyla
8	1 2	Class Trematoda Class Monogenea Class Cestoidea	Ch:10 The Smaller Lophotrochozoan Phyla
9	1 2	Midterm Exam Review Paper	
10	1 2	11.1 Evolutionary Perspective Relationships to Other Animals 11.2 Molluscan Characteristics 11.3 Class Gastropoda Torsion Shell Coiling Locomotion Feeding and Digestion Other Maintenance Functions Reproduction and Development Gastropod Diversity	Ch:11Molluscan Success
11	1 2	11.4 Class Bivalvia Shell and Associated Structures Gas Exchange, Filter Feeding, and Digestion Other Maintenance Functions Reproduction and Development Bivalve Diversity	Ch:11Molluscan Success
12	1 2	11.5 Class Cephalopoda Shell, Locomotion, Feeding and Digestion, Other Maintenance Functions Learning Reproduction and Development	Ch:11Molluscan Success
12	1 2	12.1 Evolutionary Perspective Relationships to Other Animals Metamerism and Tagmatization	Ch:12 Annelida: The Metameric Body Form
13	1 2	12.2 Annelid Structure and Function External Structure and Locomotion Feeding and the Digestive System Gas Exchange and Circulation Nervous and Sensory Functions Excretion	Ch:12 Annelida: The Metameric Body Form

		Regeneration, Reproduction, and Development 12.3 Clade (Class) Errantia Nereis (Neanthes, Alitta) Glycera, Fireworms 12.4 Clade (Class) Sedentaria Tubeworms	
14	1 2	14.1 Evolutionary Perspective Classification and Relationships to Other Animals 14.2 Metamerism and Tagmatization 14.3 The Exoskeleton 14.4 The Hemocoel 14.5 Metamorphosis 16.1 Evolutionary Perspective Relationships to Other Animals 16.2 Phylum Echinodermata Echinoderm Characteristics	Ch:14The Arthropods: Blueprint for Success Ch:16 Echinoderms and Hemichordates
15	1 2	Introduction to chordates 18 Fishes 19 Amphibians 20 Reptilian vertebrates 21 Birds 22 Mammals	Chapter 18 to 22