



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

ZL-313: Principles of Animal Life-II

Lecture Schedule	Wednesday & Friday 2:00 pm-3:15pm , 05:00pm-06:15pm	Semester	Spring 2021										
Pre-requisite	F.Sc. /A-level	Credit Hours	3										
Instructor(s)	Ms Nabiha Naeem	Contact Moodle link	nabiha.naeem@umt.edu.pk										
Office	3S-37	Office Hours	Displayed on office door & on Moodle										
Objectives	<p>The course will impart knowledge and understanding of:</p> <ul style="list-style-type: none"> • Cell division and its significance in cell cycle. • Concepts and mechanisms of inheritance pattern, chromosome and gene linkage and molecular basics of genetics. • Animal behavior and communication. • To theories of evolution, gene flow and mechanism of evolution with reference to animal diversity 												
Expected Outcomes	<p>After studying this course, student will understand:</p> <ul style="list-style-type: none"> • The process of cell division and molecular concept of genetics • Behavior of animals and communication with other organisms • Clear understanding of theories of evolution with detailed knowledge of molecular evolution 												
Text book & Reference book(s)	<ol style="list-style-type: none"> 1. Pechenik, J. A. (2016). Biology of the invertebrates. 7th Ed. Singapore: McGraw-Hill Education 2. Miller, S. A., & Harley, J. P. (2016). Zoology. 10th Ed. New York, NY: McGraw-Hill. 3. Campbell, N. A., Taylor, M. R., Simon, E. J., Dickey, J. L., Hogan, K., Reece, J. B., & Campbell, N. A. (2018). Biology: Concepts & connections. 9th Ed. New York Pearson. 												
Grading Policy	<table style="width: 100%; border: none;"> <tr> <td style="padding-right: 20px;">Assignments:</td> <td>10%</td> </tr> <tr> <td>Presentation:</td> <td>5%</td> </tr> <tr> <td>Quizzes:</td> <td>10%</td> </tr> <tr> <td>Midterm:</td> <td>30%</td> </tr> <tr> <td>Final:</td> <td>45%</td> </tr> </table>			Assignments:	10%	Presentation:	5%	Quizzes:	10%	Midterm:	30%	Final:	45%
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Course Schedule

Week	Lecture #	TOPICS
1	1 2	<ul style="list-style-type: none"> • Cell Division: Cell cycles: Mitosis
2	1 2	<ul style="list-style-type: none"> • Meiosis; control of the cell cycle.
3	1 2	<ul style="list-style-type: none"> • Inheritance Patterns: Mendelian genetics; inheritance patterns
4	1 2	<ul style="list-style-type: none"> • Gene, structure, chemical composition and types
5	1 2	<ul style="list-style-type: none"> • Chromosomes and Gene Linkage: Eukaryotic chromosomes
6	1 2	<ul style="list-style-type: none"> • Linkage and crossing over; chromosomal aberrations
7	1 2	<ul style="list-style-type: none"> • Cellular Control: DNA: the genetic material; DNA replication in prokaryotes and eukaryotes
8	1 2	<ul style="list-style-type: none"> • Control of gene expression in eukaryotes; gene mutation; recombinant DNA technologies and their applications
9	1 2	<ul style="list-style-type: none"> • Mid Term
10	1 2	<ul style="list-style-type: none"> • Animal Behavior: Behavior and its types, proximate and ultimate causes; anthropomorphism; development of behavior
11	1 2	<ul style="list-style-type: none"> • Learning; factors controlling animal behavior; communication; behavioral ecology; social behavior.
12	1 2	<ul style="list-style-type: none"> • Evolution: A Historical Perspective: Theories of evolution: Natural selection Lamarckism and neo Lamarckism, Darwinism and neo Darwinian
13	1 2	<ul style="list-style-type: none"> • Evolution and Gene Frequencies: Hardy-Weinberg principle; evolutionary mechanisms: population size, genetic drift
14	1 2	<ul style="list-style-type: none"> • Gene flow, de Vries mutation theory and rates of evolution, polymorphism; species and speciation; molecular evolution; mosaic evolution
15		<ul style="list-style-type: none"> • Final term