

Course Title	Cell Biology				
Course Code	BMS124				
Course Type	Compulsory				
Level	Bachelor (1st Cycle)				
Year / Semester	1 st Year / 2 nd Semester				
Teacher's Name	TBA				
ECTS	7	Lectures / week	3 Hours	Laboratories / week	2 Hours
Course Purpose and Objectives	<p>The objective of the course is to familiarize students with the basic structure and function of prokaryotic and eukaryotic cells, their major components and organelles, the way by which genetic information is organized within the cell and the mechanism used for DNA replication, transcription and translation. Students will also be acquainted with concepts related to normal cell function such as membrane transport, cellular respiration, cell division, and apoptosis.</p>				
Learning Outcomes	<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> • Compare prokaryotic and eukaryotic cells and be able to recall differences and similarities in terms of morphology and cellular organelles • Describe basic characteristics of viruses and prions • Describe the relationship and mode of communication between neighboring cells and between cells and their extracellular environment. • Recall the structure and role of cell membrane and describe and compare the different transmembrane transport mechanisms and their importance in cellular physiology. • Cellular respiration • Explain the way by which DNA is organized in the cell • Describe the basic principles of DNA replication, transcription and translation • Describe the mechanisms of cellular division, the phases of the cell-division cycle and its regulatory mechanisms. • Discuss the effects of aging on the cellular structure and function and to understand the process of apoptosis. • Describe the nature of progenitor stem cells and their principal characteristics. 				
Prerequisites	None		Co-requisites	None	

Course Content	<ul style="list-style-type: none"> • Normal Structure and Function of Prokaryotic and Eukaryotic Cells. • Relationships between Cells and their Environment. • Transport Mechanisms through Membranes. • Cellular respiration • DNA organization, replication, transcription and translation • Cell Division Mechanisms, the Cell-Division Cycle and Control Mechanisms. • Effects of Ageing and Apoptosis. • Progenitor stem Cells. • Cell Differentiation. <p>Laboratory exercises</p> <ul style="list-style-type: none"> • Optical Microscopy: observation of prokaryotic and eukaryotic cells • Observing bacteria in yogurt • Basic Laboratory Techniques • Testing for starch with iodine reagent • Effects of temperature on enzymatic activity • Effects of pH on enzymatic activity • Study of osmosis • Subcellular fractionation and isolation of organelles • Cell division: mitosis-meiosis • Fermentation
Teaching Methodology	Face- to- face
Bibliography	<p>Molecular Biology of the Cell; Alberts, B./ Hopkin, K./Johnson, A.; 5th; 978-0815341062; Garland Science; 2008</p> <p>Genetics: A Molecular Approach; Russel, Peter; 978-0321610225; Pearson; 2009</p> <p>ADDITIONAL RECOMMENDED TEXTBOOKS:</p> <p>The Cell (0); Geoffrey M. Cooper and Robert E. Hausman; 5th; 978-0878933006; Sinauer Associates; 2009</p> <p>Molecular Medicine; Trent, R.; 4th; 978-0123814517; Academic Press; 2011.</p>

Assessment	<table border="1"><tr><td data-bbox="448 247 917 285">Mid – Term Examination</td><td data-bbox="917 247 1156 285">30%</td></tr><tr><td data-bbox="448 285 917 323">Final Examination</td><td data-bbox="917 285 1156 323">40%</td></tr><tr><td data-bbox="448 323 917 361">Assignments/Lab</td><td data-bbox="917 323 1156 361">20%</td></tr><tr><td data-bbox="448 361 917 399">Class Participation</td><td data-bbox="917 361 1156 399">10%</td></tr><tr><td data-bbox="448 399 1156 453"></td><td data-bbox="917 399 1156 453">100%</td></tr></table>	Mid – Term Examination	30%	Final Examination	40%	Assignments/Lab	20%	Class Participation	10%		100%
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Language	English										