



<b>Course Number</b> <b>Course Name</b>	BIOL 2110 Principles of Biology: Cellular and Molecular Biology
<b>Credit Value</b> <b>(Breakdown of theory and lab credits)</b>	3 Theory
<b>Catalog Course Description</b>	Through scientific methods, you will study the role of water in cell biology, carbon and molecular diversity, macromolecules, an introduction to metabolism, tour of cell structures and functions, membrane structure and function, cellular respiration, photosynthesis, cell communication, and the cell cycle.
<b>Course Student Learning Outcomes/Objectives /Competencies</b>	<ol style="list-style-type: none"> <li>1. Apply the scientific method to develop and evaluate hypotheses and propose an experiment to test a scientific hypothesis related to cell biology and molecular biology.</li> <li>2. Describe the distinguishing characteristics of various biological molecules (water, carbohydrates, lipids, proteins, and nucleic acids). (HED Area 3, Competency 3)</li> <li>3. Compare and contrast the basic features of cells and how prokaryotic cells differ from eukaryotic cells. (HED Area 3, Competency 3)</li> <li>4. Understand how organisms maintain homeostasis in a dynamic environment.</li> <li>5. Describe how biological molecules are acquired and how they are subsequently used to meet the metabolic needs of organisms. (HED Area 3, Competency 3)</li> <li>6. Describe membrane structure and function.</li> <li>7. Describe and analyze the nature of bioenergetic transformations and metabolism within the cell.</li> <li>8. Describe the processes of cellular respiration and photosynthesis.</li> <li>9. Analyze with specific detail the processes of DNA replication, transcription, and translation.</li> <li>10. Analyze with specific detail the types, mechanisms, and regulation of cellular division.</li> <li>11. Assess important applications of cell and molecular biology to energy use, medicine, and other day-to-day processes. (HED Area 3, Competency 1,3,4,5)</li> </ol>
<b>College-Wide Student Learning Outcomes measured (General education courses only)</b>	
<b>Program Student Learning Outcomes measured</b>	<ol style="list-style-type: none"> <li>1. Provide students with broad conceptual background in biological sciences which will enable them to attain an understanding of organismal form, function, diversity, evolution, ecology, mendelian and molecular genetics, cell structure, function and physiology and molecular processes.</li> </ol>

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