

1/15/2025

DATE

 REQUIRED COURSE
 ELECTIVE COURSE

 MSD DIVISION
 NEW COURSE
 REVISION

Lake Land College

Course Information Form

COURSE NUMBER:		BIO-100		TITLE: (30 Characters Max)			Bio Science I				
SEM CR HRS:	4	Lecture:	3	Lab:	2	ECH:	5				
Course Level:	<input checked="" type="checkbox"/> Gen Ed/IAI <input type="checkbox"/> Career/Technical <input type="checkbox"/> Baccalaureate/Non-IAI <input type="checkbox"/> Dev Ed/Not in Degree Audit		Clinical Practicum:		0	Work-based Learning:	0	WBL ECH:	0		
COURSE PCS #	11 - 26.0101		IAI Code:		L1910L & BIO910		Contact Hours (Minutes/Week)				
Repeatable (Y/N):	N	Pass/Fail (Y/N):	N	Variable Credit (Y/N):	N	Min:	Max:	16 Wks	250	8 Wks	500
Prerequisites:	None										
Corequisites:	None										
Catalog Description: (40 Word Limit)	This course provides an introduction to the fundamental processes and structures common to all living things, along with their applications to society.										

List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Work-based Learning
Introduction	2.5	1		
Ecology	5	3		
Metric system	1.5	1		
Biochemistry	3.5	4		
The microscope	2	2		
The cell	3.5	2		
Osmosis	2.5	2		
Enzymes	2	1		
Cell metabolism (photosynthesis/cellular resp.)	5	3		
Protein synthesis	3	2		
Mitosis/Meiosis	5	3		
Genetics	5.5	6		
Evolution	4	0		
TOTAL	45	30	0	0

EVALUATION

QUIZZES <input checked="" type="checkbox"/>	EXAMS <input checked="" type="checkbox"/>	ORAL PRES <input type="checkbox"/>	PAPERS <input checked="" type="checkbox"/>
LAB WORK <input checked="" type="checkbox"/>	PROJECTS <input type="checkbox"/>	COMP FINAL <input checked="" type="checkbox"/>	OTHER <input checked="" type="checkbox"/> homework

COURSE MATERIALS

TITLE:	Biology
AUTHOR:	Mary A. Clark, Matthew Douglas, Jung Choi
PUBLISHER:	OpenStax
VOLUME/EDITION/URL:	2nd Edition ISBN-13: 978-1-947172-52-4
COPYRIGHT DATE:	2022

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		<i>The student will be able to:</i>
Introduction	3.5	1. Differentiate between science and non-science. 2. Demonstrate the scientific method to identify characteristics of living organisms.
Ecology	8	1. Compare and contrast the structure of ecosystems, including food chains, food webs, ecological pyramids and biogeochemical cycles. 2. Interpret the dynamics of populations and the factors which influence them.
Metric system	2.5	1. Name the basic units of measurement of the metric system. 2. Compute conversions from one unit to another.
Biochemistry	7.5	1. Relate atomic structure to bonding and pH. 2. Explain the importance of organic and inorganic molecules and their roles in living organisms.
The microscope	4	1. Identify the parts of a microscope, make a wet-mount slide and utilize proper technique to bring a specimen into focus.

The cell and cell theory	5.5	1. Identify cell components, their functions and their relationships to cellular life processes. 2. Explain the cell theory.
Osmosis	4.5	1. Compare the various means of membrane transport and apply the concepts to tonicity problems.
Enzymes	3	1. Describe the structure and function of enzymes and their importance to living cells.
Cellular metabolism (photosynthesis and cellular respiration)	8	1. Summarize the light-dependent and light-independent reactions of photosynthesis regarding energy sources, raw materials and end products. 2. Describe the major biochemical pathways of cellular respiration, including glycolysis, Krebs Cycle and electron transport chain.
Protein synthesis and molecular aspects of genetics	5	1. Describe the structure of DNA and how it relates to the production of proteins. 2. List factors that cause errors in DNA and their possible effects.
Mitosis/Meiosis	8	1. Describe the structure of a chromosome and illustrate its activities during mitosis and meiosis. 2. Differentiate the processes and outcomes between meiosis and mitosis.
Genetics	11.5	1. Identify how meiotic concepts are integrated into Mendelian genetics. 2. Explain the basic principles of Mendelian genetics and their applications in inheritance patterns, quantitative genetics, heredity and gene expression. 3. Relate genetics principles to chromosome abnormalities, linkage and chromosomal mapping. 4. Describe the process and use of recombinant DNA technology. 5. Describe different patterns of inheritance. 6. Relate human genetics to various research and technological advancements of today's society.
Evolution	4	1. Discuss why content from ecology, DNA structure, protein synthesis, mitosis, meiosis and genetics lectures are vital to understand when studying evolution. 2. Describe the role of natural selection in the process of evolution. 3. Identify the factors that lead to speciation.
75		

Outcomes*	At the successful completion of this course, students will be able to:
Course Outcome 1	Competently utilize lab equipment and metric measurements in laboratory exercises and utilize critical thinking involving the scientific method.
Course Outcome 2	Identify cellular structures and processes. This knowledge will allow them to apply critical thinking skills to health/body/everyday scenarios.
Course Outcome 3	Explain and apply knowledge of energy systems and the flow of energy in an ecosystem.
Course Outcome 4	Explain DNA structure and function and apply this knowledge to fields of mitosis, meiosis, biotechnology and evolution.
Course Outcome 5	Apply knowledge acquired from BIO-100 to competently address bioethical issues and other areas of science and society.
Course Outcome 6	Form logical and educated opinions on various science and society topics.
Primary Laker Learning Competency	Scientific Literacy: Students apply the scientific process to real-life situations.
Secondary Laker Learning Competency	Quantitative Literacy: Students analyze data and mathematical patterns in real-life situations.

*Course and program outcomes will be used in the software for outcomes assessment and should include at least 1 primary and 1 secondary Laker Learning Competency. Limit to 3-5.