

Biology Assessment Plan Rev. 6/15/2018

Biology	14-15	15-16	16-17	17-18	18-19	19-20
BIOLB3A - General Biology I						
• Upon completion of the course, students will be able to: demonstrate knowledge about the essential elements of life, major hypothesis for life's history, and mechanisms for the diversification of life.			X			
• Students will compare and contrast the development , life cycles, anatomical and physiological characteristics of major taxa of organisms.					X	
• Students will evaluate the relationships of organisms to each other and their environments.				X		
• Students will describe and identify key characteristics and classify representative specimens down to representative phyla.			X			
• Students will apply the processes of scientific inquiry and phylogenetic analysis to the diversity of organisms.		X				
BIOLB3B - General Biology II						
• Upon completion of this course, the student will be able to research a topic relevant to course material, design experiments, synthesize and evaluate their data and communicate their findings both orally and in a written format.			X	X	X	X
• Illustrate the mechanism of evolution by natural selection and consider how this process is the unifying theme in Biology.			X	X	X	X
• Identify, describe and compare the functions of prokaryotic and eukaryotic cells structures and biological macromolecules.			X	X	X	X
• Compare and contrast catabolic and anabolic metabolic pathways, cellular communication and cellular division of prokaryotic and eukaryotic cells. .			X	X	X	X
• Illustrate and describe the structure and replication of DNA, transcription of DNA and translation of mRNA into proteins.	X		X	X	X	X
• Solve genetic problems by employing the fundamentals of Mendelian genetics.			X	X	X	X
BIOLB8 - Introduction to Environmental Science						
• 1. Upon successful completion of the course, the student will be able to identify and describe major global, regional and local environmental issues.						X
• 2. Upon successful completion of the course, the student will be able to analyze the scientific basis of major environmental issues by interpreting quantitative data and creating visual representations of data in order to identify and evaluate potential solutions.						X
• 3. Upon successful completion of the course, the student will be able to investigate relationships between human actions and environmental issues and examine the impacts of these issues on human populations.						X
BIOLB11 - Concepts of Biology						
• research a topic, design experiments, synthesize and evaluate the information, justify and express their opinions.				X		
• identify various cells and their structural components, and differentiate the functions of each of their components.				X		
• 1) understand the significance of DNA as the basis for heredity, structure, function and disease in living organisms; 2) describe the DNA molecule and explain how it is used in living systems to create proteins; and 3) describe how proteins function in living cells.		X				
• describe the organs found in selected human organ systems, then explain the role played by each organ in the overall functioning of that system.					X	
• compare and contrast characteristics of various organisms particularly related to energy sources (feeding style), cellular composition, reproduction and relationship to the ecosystem.					X	
• 1) describe the flow of energy through the ecosystem, then construct a food web, placing specific species of organisms at each level; 2) choose a common ecosystem disturbance of human origin and predict the effects of that disturbance on a food web and understand the complexity of ecosystems and environmental issues.			X			
• 1) recognize, value, and apply major biological concepts contributing to current issues in the biological realm; and 2) apply critical thinking skills to formulate and defend a position on a controversial issue of biological importance.					X	

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BIOLB16 - General Microbiology						
• Upon completion the student will be able to: Compare and contrast the characteristics for various microbes with regards to infections, treatment, and control. (This includes prions, viruses, bacteria, protozoans, and multicellular parasites.)					X	
• Explain the dynamics of commensal, opportunistic, and pathological relationships particularly between microbes and humans.					X	
• Evaluate and apply the proper methods of microbial control necessary in sample scenarios or case studies.			X			
• Describe microbial metabolic pathways in general terms and specifically evaluate the implications for food production and human disease.				X		
• Summarize basic bacterial genetic principles and analyze consequences of mutation and genetic recombination.				X		
• Articulate and diagram the role of the immune system in maintaining homeostasis, challenging infections, and fighting cancer.					X	
• Apply the scientific method by stating a question; researching the topic; determining appropriate tests; performing tests; collecting, analyzing, and presenting data; and finally proposing new questions about the topic.				X		
• Correctly perform microbiologic lab skills and safety practices which extend to relevant situations in the student's homes.			X			
• Retrieve, evaluate, and use contemporary microbiologic information.				X		
BIOLB18 - Essentials of Human Anatomy and Physiology						
• Upon completion of the course, the student will be able to Compare and contrast structure and function at the chemical through human organ system levels of organization.					X	
• Upon completion of the course, the student will be able to Demonstrate independent and collaborative work on laboratory exercises operating basic lab equipment while using safety procedures.					X	
• Upon completion of the course, the student will be able to Apply homeostatic mechanisms to predict physiological outcomes.					X	
• Upon completion of the course, the student will be able to Use proper anatomy and physiology terminology.					X	
• Upon completion of the course, the student will be able to Evaluate information regarding the human body and medical issues relevant to real-life examples.					X	
BIOLB21 - Special Projects in Biology						
• Upon completion of the course, the student will be able to: Collect, assemble, maintain and organize biological collections					X	
• Select and evaluate biological materials needed for laboratory preparation					X	
• Analyze a biological topic or concept which the student judges to be difficult for other students to learn or understand. The student must create, organize, prepare and present to students an activity designed to help them grasp the biological topic		X				
• Design and organize a pre-exam review session including: examining topics to distinguish importance, creating review questions &/or activities and suggesting effective study techniques.		X			X	
BIOLB32 - Human Anatomy and Physiology I						
• Describe and distinguish various roles of major classes of biomolecules in living cells.				X		
• Demonstrate an understanding of how homeostasis is maintained in the body.		X		X		
• Analyze experimental data to demonstrate physiological principles.		X		X		
• Demonstrate an understanding of the scientific method, experimental design, and the philosophy of science. Apply the scientific method and philosophy of science by designing components of and carrying out physiological experiments.				X		
• Describe key structural features of different human cells and major tissue types.		X		X		
• Identify and describe the anatomy of the systems of the human body.				X		
• Identify key functions of major organ systems and the physiological mechanisms underlying their operation.				X		
• Relate structure and function at the cellular through system levels of organization of human body systems				X		
• Describe structural or anatomical changes that occur in disease, injury or aging of the human body systems.				X		
• Demonstrate knowledge of metabolic and physiological disorders of the major organ systems.				X		
• Describe key functional features of different types of human cells and how they communicate.				X		
• Demonstrate an understanding of how organ systems of the body are integrated and regulated.				X	X	

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BIOLB33 - Human Anatomy and Physiology II						
• Describe and distinguish various roles of major classes of biomolecules in living cells.				X		
• Demonstrate an understanding of how homeostasis is maintained in the body.				X		
• Analyze experimental data to demonstrate physiological principles.				X		
• Demonstrate an understanding of the scientific method, experimental design, and the philosophy of science. Apply the scientific method and philosophy of science by designing components of and carrying out physiological experiments.		X		X		
• Describe key structural features of different human cell and major tissue types.				X		
• Identify and describe the anatomy of the systems of the human body.		X		X		
• Identify key functions of major organ systems and the physiological mechanisms underlying their operation.		X		X		
• Relate structure and function at the cellular through system levels of organization of human body systems				X		
• Describe structural or anatomical changes that occur in disease, injury or aging of the human body systems.				X		
• Demonstrate knowledge of metabolic and physiological disorders of the major organ systems.				X		
• Describe key functional features of different types of human cells and how they communicate.				X		
• Demonstrate an understanding of how organ systems of the body are integrated and regulated.				X	X	