# BIOLOGY Program

## ISLOs, PSLOs, CSLOs, Mapping, and Assessment Plan

| | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | | Year 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | F 2013 | S 2014 | F 2014 | S 2015 | F 2015 | S 2016 | F 2016 | S 2017 | F 2017 | S 2018 | F 2018 | S 2019 |
| | **INSTITUTIONAL STUDENT LEARNING OUTCOMES - ISLOs** | | | | | | | | | | | | | |
| **ISLO 1** | **COMMUNICATION** | | | | | | | | | | | | | |
| 1A | Read | | | | | | | | | | | | | |
| 1B | Listen | | | | | | | | | | | | | |
| 1C | Write | | | | | | | | | | | | | |
| 1D | Dialogue | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| **ISLO 2** | **TECHNOLOGY AND INFORMATION COMPETENCY** | | | | | | | | | | | | | |
| 2A | Demonstrate Technical Literacy | | | | | | | | | | | | | |
| 2B | Apply Technology | | | | | | | | | | | | | |
| 2C | Access Information | | | | | | | | | | | | | |
| 2D | Evaluate and Examine Information | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| **ISLO 3** | **CRITICAL AND CREATIVE THINKING** | | | | | | | | | | | | | |
| 3A | Inquire | | | | | | | | | | | | | |
| 3B | Analyze | | | | | | | | | | | | | |
| 3C | Problem Solve | | | | | | | | | | | | | |
| 3D | Express | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| **ISLO 4** | **CITIZENSHIP** | | | | | | | | | | | | | |
| 4A | Ethics | | | | | | | | | | | | | |
| 4B | Diversity | | | | | | | | | | | | | |
| 4C | Sustainability/Global Awareness | | | | | | | | | | | | | |
| 4D | Personal Responsibility | | | | | | | | | | | | | |

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| | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | | Year 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | F 2013 | S 2014 | F 2014 | S 2015 | F 2015 | S 2016 | F 2016 | S 2017 | F 2017 | S 2018 | F 2018 | S 2019 |
| | **BIOLOGY PROGRAM OUTCOMES - PSLOs** | **Related ISLOs** | | | | | | | | | | | | |
| PSLO A | Apply the scientific method to design, conduct experiments, and test hypotheses. | 1A, 1C, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D | | | | | | | | | | | | |
| PSLO B | Conduct scientific literature review, critically evaluate, and interpret biological information. | 1A, 1C, 2A, 2C, 3A, 3B, 3D | | | | | | | | | | | | |
| PSLO C | Outline the organization and integration of biological systems. | 1A, 1B, 1C, 1D, 3A, 3B, 3D | | | | | | | | | | | | |
| PSLO D | Apply laboratory and/or field skills necessary to answer biological questions. | 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D | | | | | | | | | | | | |
| PSLO E | As an informed and responsible individual, evaluate contemporary biological issues that have social and/or ethical implications. | 1A, 1B, 1D, 2C, 2D, 3A, 3B, 3D, 4A, 4B, 4C, 4D | | | | | | | | | | | | |
| **Biological Sciences A.S. degree - same as the PSLOs.**<br>**Watershed Ecology A.S. degree - same as the PSLOs.**<br>**Watershed Ecology Certificate of Achievement - same as the PSLOs.** | | | | | | | | | | | | | | |
| | **BIOLOGY COURSE OUTCOMES - CSLOs** | **Related PSLO** | | | | | | | | | | | | |
| | **BIOL 1 - General Biology** | | C - Completed, P- Planned | | | | | | | | | | | |
| CSLO 1 | Perform or design scientific investigations using appropriate methods, instruments, and techniques, including the main steps of scientific inquiry. | A,B,C,D | | C | | | | | | C | | | | |
| CSLO 2 | Explain the mechanisms of microevolution and describe the reproductive barriers that cause speciation. | A,B,C,D,E | C | | | | | | | | | | | |
| CSLO 3 | Describe the structure and function of DNA and explain the various patterns of gene inheritance. | A,B,C,D | | | | | | | | | | | | |
| CSLO 4 | Demonstrate knowledge of population ecology and principles of biological diversity. | A,B,C,D,E | | | | | | | | | | | | |
| CSLO 5 | Describe the major cellular processes, including gene expression, mitosis and meiosis, cellular respiration, fermentation and photosynthesis. | A,B,C,D | | | | | | | | | | | | |

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| | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | | Year 6 | |
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| | | | F 2013 | S 2014 | F 2014 | S 2015 | F 2015 | S 2016 | F 2016 | S 2017 | F 2017 | S 2018 | F 2018 | S 2019 |
| | **BIOL 2 - Botany** | | C - Completed, P- Planned | | | | | | | | | | | |
| CSLO 1 | Identify and describe primary and secondary plant metabolites and their significance to both plants and humans. | A,B,C,D,E | | | | | | | | | | | | |
| CSLO 2 | Identify and describe the major cells and tissues in roots, stems, leaves, wood, and reproductive parts. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Compare and contrast structure and function of major tissue types in stems, roots, and leaves, of angiosperms and gymnosperms. | A,C,D | | | | | | | | | C | | | |
| CSLO 4 | Describe the fundamental characteristics of plant-based viruses, Cyanobacteria, Photosynthetic Protists, Fungi, and members of the Plant Kingdom (Bryophytes, Ferns, Gymnosperms and Angiosperms). | A,C,D | | | | | | | | | | | | |
| CSLO 5 | Detail the broad evolution of plants and their association with the current ecological landscape. | A,B,D,E | | | C | | | | | | | | | |
| | **BIOL 3 - General Zoology** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the leading hypotheses for the evolution of metazoans (multi-celled animals). | C | C | C | | | | | | | | | | |
| CSLO 2 | Compare and contrast the developmental processes leading to basic protostome, deuterostome, coelomate, pseudocoelomate, and acoelomate animal body plans. | A,C,D | C | C | | | | | | C | | | | |
| CSLO 3 | Evaluate the evolutionary adaptations exhibited by various animal phyla. | B,C | C | C | | | | | | | | | | |
| CSLO 4 | Synthesize the environmental conditions and evolutionary pressures that led to major innovation, including the evolution of terrestrial animals, the evolution of chordates, and the evolution of flight. | C,D | C | C | | | | | | | | | | |
| CSLO 5 | Investigate the interactions and ecological relationships between humans and other animals. | A,E | C | C | | | | | | | | | | |
| | **BIOL 4 - Microbiology** | | | | | | | | | | | | | |
| CSLO 1 | Distinguish the cellular organization of organisms within Domains Archaea, Bacteria, and Eukarya and describe the microscopic structures of viruses. | A,C,D | | | | | | | | | C | | | |
| CSLO 2 | Distinguish morphological, physiological, and environmental characteristics for, ecological impact of, and taxonomic classification for several representative microorganisms from each Domain of life. | A,B,C,D | | | C | | | | | | | | | |
| CSLO 3 | Describe metabolic and genetic pathways of microbial cells and the replication processes of viruses. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Describe the human immune system and the importance of vaccination against microorganisms and viruses to human herd immunity. | A,D,E | | | | | | | | | | | | |
| CSLO 5 | Perform modern genetic techniques used in the identification of microorganisms and recombinant DNA technology. | A,B,C,D | | | | | | | | | | | | |

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| | | | F 2013 | S 2014 | F 2014 | S 2015 | F 2015 | S 2016 | F 2016 | S 2017 | F 2017 | S 2018 | F 2018 | S 2019 |
| | **BIOL 5 - Human Anatomy** | | C - Completed, P- Planned | | | | | | | | | | | |
| CSLO 1 | Describe and categorize the key structural features of different human cells, major tissue types and subtypes, and identify locations in the body where each is located. | A,C,D | C | | | | | | | | | | | |
| CSLO 2 | Identify, describe and compare the anatomical location, histology and gross anatomical structure of all human body systems in appropriate detail for a major anatomy course. | A,C,D | | C | | | | | | C | | | | |
| CSLO 3 | Identify and demonstrate the anatomical structures of the human body by systems utilizing anatomical models, organ specimens, cadavers and visual media. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compare structure and function of all human body systems from the cellular through system levels of organization. | A,C,D | | | | | | | | | | | | |
| CSLO 5 | Recognize structural or anatomical changes that occur in disease, injury or aging of the human body systems. | A,C,D | | | | | | | | | | | | |
| | **BIOL 5X - Success in Anatomy** | | | | | | | | | | | | | |
| CSLO 1 | Articulate principles and demonstrate techniques of study skills necessary to succeed in anatomy and science courses. | C,D | | | | | | | | | | C | | |
| CSLO 2 | Application of anatomical knowledge to problem solving situations, clinical applications, and extended discussions of human structure. | C,D | | | | | | | | | | | | |
| | **BIOL 6 - Human Physiology** | | | | | | | | | | | | | |
| CSLO 1 | Identify the functions of the human organ systems and describe the physiological mechanisms underlying their operation from the chemical through systems levels of organization. | C | | | | | | | | | C | | | |
| CSLO 2 | Apply the processes of homeostatic and feedback control mechanisms to explain how the various organ systems are regulated and integrated to maintain homeostasis between organ systems and the body as a whole. | C | | | C | | | | | | | | | |
| CSLO 3 | Recognize metabolic and physiological changes that occur in the human body systems as a result of disease, genetics, injury, or aging. | E | | | | | | | | | | | | |
| CSLO 4 | Collect, analyze, and interpret experimental data to demonstrate physiological principles. | D | | | C | | | | | | | | | |
| | **BIOL 7A - Human Anatomy I** | | | | | | | | | | | | | |
| CSLO 1 | Describe and categorize the key structural features of different human cells, major tissue types and subtypes, and identify locations in the body where each is located. | A, C,D | | | | | | | | | C | | | |
| CSLO 2 | Identify, describe and compare the anatomical location, histology and gross anatomical structure of all human body systems in appropriate detail for a major anatomy course. | A,C,D | | | | | | | | | | | | |

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| | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | | Year 6 | |
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| | | | F 2013 | S 2014 | F 2014 | S 2015 | F 2015 | S 2016 | F 2016 | S 2017 | F 2017 | S 2018 | F 2018 | S 2019 |
| CSLO 3 | Identify and demonstrate the anatomical structures of the human body by systems utilizing anatomical models, organ specimens, cadavers and visual media. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compare structure and function of all human body systems from the cellular through system levels of organization. | A,C,D | | | | | | | | | | | | |
| CSLO 5 | Recognize structural or anatomical changes that occur in disease, injury or aging of the human body systems. | A,C,D | | | C | | | | | | | | | |

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| | | | F 2013 | S 2014 | F 2014 | S 2015 | F 2015 | S 2016 | F 2016 | S 2017 | F 2017 | S 2018 | F 2018 | S 2019 |
| | **BIOL 7B - Human Anatomy II** | | C - Completed, P- Planned | | | | | | | | | | | |
| CSLO 1 | Describe and categorize the key structural features of different human cells, major tissue types and subtypes, and identify locations in the body where each is located. | A,C,D | | | | | | | | | | | | |
| CSLO 2 | Identify, describe and compare the anatomical location, histology and gross anatomical structure of all human body systems in appropriate detail for a major anatomy course. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Identify and demonstrate the anatomical structures of the human body by systems utilizing anatomical models, organ specimens, cadavers and visual media. | A,C,D | | | | | | | | C | | | | |
| CSLO 4 | Compare structure and function of all human body systems from the cellular through system levels of organization. | A,C,D | | C | | | | | | | | | | |
| CSLO 5 | Recognize structural or anatomical changes that occur in disease, injury or aging of the human body systems. | A,C,D | | | | | | | | | | | | |
| | **BIOL 8A - Microbiology I** | | | | | | | | | | | | | |
| CSLO 1 | Distinguish the cellular organization of organisms within Domains Archaea, Bacteria, and Eukarya. | A,C,D | | | | | | | | | C | | | |
| CSLO 2 | Distinguish morphological, physiological, and environmental characteristics for, ecological impact of, and taxonomic classification for several representative microorganisms from each domain of life. | A,B,C,D | | | C | | | | | | | | | |
| CSLO 3 | Describe the nature of enzymes and their roles in the metabolism of microbial cells. | A, C, D | | | | | | | | | | | | |
| | **BIOL 8B - Microbiology II** | | | | | | | | | | | | | |
| CSLO 1 | Describe metabolic and genetic pathways of microbial cells and the replication processes of viruses. | A,C,D | | C | | | | | | C | | | | |
| CSLO 2 | Describe the human immune system and the importance of vaccination against microorganisms and viruses to human herd immunity. | A,D,E | | | | | | | | | | | | |
| CSLO 3 | Perform modern genetic techniques used in the identification of microorganisms and recombinant DNA technology. | A,B,C,D | | | | | | | | | | | | |

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| | | | F 2013 | S 2014 | F 2014 | S 2015 | F 2015 | S 2016 | F 2016 | S 2017 | F 2017 | S 2018 | F 2018 | S 2019 |
| | **BIOL 10 - Introduction to Biology** | | C - Completed, P- Planned | | | | | | | | | | | |
| CSLO 1 | Develop, utilize and evaluate scientific hypotheses. | A,B,C | | | | | | | | | | | | |
| CSLO 2 | Appraise the relationship between cellular respiration and photosynthesis. | C | | C | | | | | | | | | | |
| CSLO 3 | Formulate the correct structure of the main types of cells and diagnose the hypotheses regarding the evolutionary development of those cells. | C | | | | | | | | | | | | |
| CSLO 4 | Assess the role of DNA in living things, construct methods to analyze the patterns of inheritance, and judge the impact of genetic engineering on living things. | A,B,C,E | | | | | | | | C | | | | |
| CSLO 5 | Justify the role of evolution in the development of living things, the diversity of living things and judge the effects of humans on living things on earth. | A,B,C,E | | | | | | | | | | | | |
| | **BIOL 11 - Concepts of Biology** | | | | | | | | | | | | | |
| CSLO 1 | Develop, utilize and evaluate scientific hypotheses. | A,B,C,D | | C | | | | | | | | | | |
| CSLO 2 | Appraise the relationship between cellular respiration and photosynthesis. | C,D | | | | | | | | | | | | |
| CSLO 3 | Formulate the correct structure of the main types of cells and diagnose the hypotheses regarding the evolutionary development of those cells. | C,D | | | | | | | | C | | | | |
| CSLO 4 | Assess the role of DNA in living things, construct methods to analyze the patterns of inheritance, and judge the impact of genetic engineering on living things. | A,B,C,D,E | | | | | | | | | | | | |
| CSLO 5 | Justify the role of evolution in the development of living things, the diversity of living things and judge the effects of humans on living things on earth. | A,B,C,D,E | | | | | | | | | | | | |
| | **BIOL 13 - Field Methods in Ecology** | | | | | | | | | | | | | |
| CSLO 1 | Develop, implement and test a scientific hypothesis. | A,B,C,D | | | | | | | | | | C | | |
| CSLO 2 | Critique the proper use of statistical tests to evaluate the results of scientific data collection. | A,D,E | | | | | | | | | | | | |
| CSLO 3 | Synthesize data collected from scientific study and literature review into a report that follows an accepted scientific format from a primary source journal. | A,B,D | | | | | | | | | | | | |
| CSLO 4 | Evaluate the current standards and methods used to do field studies and determine which methods are best applied to different situations following proper ethical considerations as well as state and Federal regulations. | A,B,D,E | | | | | | | | | | | | |
| CSLO 5 | Synthesize ecological information and utilize the same to evaluate biological systems and populations. | A,C,D,E | | | | C | | | | | | | | |

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| | **BIOL 14 - Natural History, Ecology and Conservation** (Also known as ESS 14) | | C - Completed, P- Planned | | | | | | | | | | | |
| CSLO 1 | Evaluate and assess the biophysiographic characteristics and limiting factors of the major ecosystems of California. | A,C,D | | | | | | | | | | | | |
| CSLO 2 | Evaluate the impacts of humans on the environment. | B,E | | C | | | | | | | | | | |
| CSLO 3 | Judge the effects of geology, climate, weather and ecological interactions on the natural history of organisms and environments. | A,B,C,D,E | | | | | | | | C | | | | |
| CSLO 4 | Justify the role that evolution plays in the natural history and conservation of organisms. | A,B,D,E | | C | | | | | | | | | | |
| | **BIOL 15 - Marine Biology** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on marine and intertidal organisms and environments. | A,B,D,E | | | | | | | | | | | | |
| CSLO 2 | Formulate the biophysiographic characteristics of the marine and intertidal environments and appraise the adaptations of the organisms found within. | A,B,C,D | | | | | | C | | C | | | | |
| CSLO 3 | Diagnose the effect of the movement of water on marine and intertidal environments and diagram the forces that cause those movements. | A,B,D | | | | | | | | | | | | |
| CSLO 4 | Critique the principles of ecology as they apply to marine and intertidal environments. | A,B,C,D,E | | | | | | | | | | | | |
| CSLO 5 | Diagnose the effect of niche partitioning on marine communities. | A,B,C,D | | | | | | | | | | | | |
| | **BIOL 16A - Local Ecosystems of Placer County** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of Placer County. | A,D,E | | | | | | | | | C | | | |
| CSLO 2 | Appraise the ecological and geological principles that affect the natural history of Placer County. | A,C,D | | | | | | | | | C | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms of Placer County. | A,C,D | | | | | | | | | C | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip in Placer County. | A,B,C,D,E | | | | | | | | | C | | | |

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| | | | F 2013 | S 2014 | F 2014 | S 2015 | F 2015 | S 2016 | F 2016 | S 2017 | F 2017 | S 2018 | F 2018 | S 2019 |
| | **BIOL 16B - Local Ecosystems of Nevada County** | | C - Completed, P- Planned | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of Nevada County. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geological principles that affect the natural history of Nevada County. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms of Nevada County. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience in Nevada County. | A,B,D,E | | | | | | | | C | | | | |
| | **BIOL 16C - Vernal Pools and the California Prairie** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of the vernal pool and prairie environment. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geological principles that affect the natural history of the vernal pool and prairie environment. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms of the vernal pool and prairie environment. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience in the vernal pool and prairie environment. | A,B,D,E | | | | C | | | | | | | | |
| | **BIOL 16D - Biology of Waterfowl and Marsh Birds** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of wetlands and the organisms that reside there. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geological principles that affect the wetland environment and the organisms that reside there. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms of the wetland environment. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience in the wetland environment. | A,B,D,E | | | | | | | | | C | | | |
| | **BIOL 16E - Ecology of the Sierran Conifer Forest** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of Sierran coniferous forest. | A,D,E | | | | | | | | | | | C | |
| CSLO 2 | Appraise the ecological and geological principles that affect the natural history of the Sierran coniferous forest. | A,C,D | | | | | | | | | | | C | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms of the Sierran coniferous forest. | A,C,D | | | | | | | | | | | C | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience in the Sierran coniferous forest. | A,B,D,E | | | | | C | | | | | | C | |

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| | **BIOL 16G - Field Paleontology and Ancient Environments** (Also known as ESCI 16G) | | C - Completed, P- Planned | | | | | | | | | | | |
| CSLO 1 | Interpret the stratigraphy to understand the paleoenvironmental setting of fossils. | A,D | | | | | C | | | | | | | |
| CSLO 2 | Apply principles of geology, biology and ecology in order to reconstruct the paleoenvironment. | A,C,D | | | | | | | | | | | C | |
| CSLO 3 | Collect, classify, and catalog paleontological specimens. | D | | | | | | | | | | | | |
| | **BIOL 16H - Ecology of the Mendocino Coast** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of the Mendocino coast. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geological principles that affect the natural history of the Mendocino coast. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms of the Mendocino coast. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience at the Mendocino coast. | A,B,D,E | | | | | | C | | | | | C | |
| | **BIOL 16I - Biology of Mono Lake and the Great Basin** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of the Mono Lake and Great Basin Regions. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geological principles that affect the natural history of the Mono Lake and Great Basin Regions. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms of the Mono Lake and Great Basin Regions. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience at the Mono Lake and Great Basin Regions. | A,B,D,E | | | | | | | | C | | | | |
| | **BIOL 16J - Biology of Point Reyes National Seashore** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of the Point Reyes National Seashore. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geological principles that affect the natural history of the Point Reyes National Seashore. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms of the Point Reyes National Seashore. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience at the Point Reyes National Seashore. | A,B,D,E | | | | | C | | | | | | | |

# BIOLOGY Program

## ISLOs, PSLOs, CSLOs, Mapping, and Assessment Plan

| | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | | Year 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | F 2013 | S 2014 | F 2014 | S 2015 | F 2015 | S 2016 | F 2016 | S 2017 | F 2017 | S 2018 | F 2018 | S 2019 |
| | **BIOL 16K - Foothill Ecology of the Sierra Nevada** | | C - Completed, P- Planned | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of the foothills of the Sierra Nevada region. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geographical principles that affect the natural history of the foothills of the Sierra Nevada region. | A,D,E | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms of the foothills of the Sierra Nevada region. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience of the foothills of the Sierra Nevada region. | A,B,D,E | | | | | | | | | | | | C |
| | **BIOL 16L - Aquatic and Riparian Environments of California Waterways** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of the foothills of California waterways and riparian environments. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geological principles that affect the natural history of the foothills of California waterways and riparian environments. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms of the foothills of California waterways and riparian environments. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience of the foothill of California waterways and riparian environments. | A,B,D,E | | | | | | C | | | | | | |
| | **BIOL 16M - Marine Mammals and Birds** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on marine mammals and birds and the environments that they live within. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geological principles that affect marine mammals and birds and the environments that they live within. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of marine mammals and birds. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field experience to examine marine mammals and birds and the environments that they live within. | A,B,D,E | | | | | C | | | | | | | |
| | **BIOL 16N - Ecology of the Modoc Plateau** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of the Modoc Plateau. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geographical principles that affect the environments of the Modoc Plateau. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms living in the environments of the Modoc Plateau. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience to the environments of the Modoc Plateau. | A,B,D,E | | | | | | | | C | | | | |

# BIOLOGY Program

## ISLOs, PSLOs, CSLOs, Mapping, and Assessment Plan

| | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | | Year 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | F 2013 | S 2014 | F 2014 | S 2015 | F 2015 | S 2016 | F 2016 | S 2017 | F 2017 | S 2018 | F 2018 | S 2019 |
| | **BIOL 16O - Ecology of the High Sierra and White Mountain** | | C - Completed, P- Planned | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of the High Sierra. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geographical principles that affect the environments of the High Sierra. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms living in the environments of the High Sierra. | A,C,D | | | C | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience to the environments of the High Sierra. | A,B,D,E | | | | | | | | | | | | |
| | **BIOL 16P - Death Valley and Desert Ecosystems** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of desert ecosystems. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geographical principles that affect the environments of desert ecosystems. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms living in the environments of desert ecosystems. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience to the environments of desert ecosystems. | A,B,D,E | | | | | | | | | | P | | |
| | **BIOL 16Q - Ecology of Mid-Western North America** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of mid-western North America. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geographical principles that affect the environments of mid-western North America. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms living in mid-western North America. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience to the environments of mid-western North America. | A,B,D,E | | | | | | | | | | | | |
| | **BIOL 16R - Canyon Lands of the Southwest** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of canyon lands of the Southwestern United States. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geographical principles that affect the environments of canyon lands of the Southwestern United States. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms living in canyon lands of the Southwestern United States. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience to the environments of canyon lands of the Southwestern United States. | A,B,D,E | | | | | | | | | | | | |

# BIOLOGY Program

## ISLOs, PSLOs, CSLOs, Mapping, and Assessment Plan

| | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | | Year 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | F 2013 | S 2014 | F 2014 | S 2015 | F 2015 | S 2016 | F 2016 | S 2017 | F 2017 | S 2018 | F 2018 | S 2019 |
| | **BIOL 16T - Coastal Habitats of Northern California** | | C - Completed, P- Planned | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of coastal habitats of Northern California. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geographical principles that affect the environments of coastal habitats of Northern California. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms living in coastal habitats of Northern California. | A,C,D | | | | | | C | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience to the environments of coastal habitats of Northern California. | A,B,D,E | | | | | | | | | | | | |
| | **BIOL 16U - Coastal Habitats of Central California** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of coastal habitats of Central California. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geographical principles that affect the environments of coastal habitats of Central California. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms living in coastal habitats of Central California. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience to the environments of coastal habitats of Central California. | A,B,D,E | | | | C | | | | | | | | |
| | **BIOL 16V - Deserts of Southern California** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of deserts of Southern California. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geographical principles that affect the environments of deserts of Southern California. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms living in deserts of Southern California. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience to the environments of deserts of Southern California. | A,B,D,E | | | | | | | | | | | | |
| | **BIOL 16W - Biology/ Ecology of the Klamath and the Southern Cascade** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of the Pacific Northwest and the Cascades. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geographical principles that affect the environments of the Pacific Northwest and the Cascades. | A,C,D | | | | | C | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms living in the Pacific Northwest and the Cascades. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience to the environments of the Pacific Northwest and the Cascades. | A,B,D,E | | | | | | | | | | | | |

# BIOLOGY Program

## ISLOs, PSLOs, CSLOs, Mapping, and Assessment Plan

| | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | | Year 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | F 2013 | S 2014 | F 2014 | S 2015 | F 2015 | S 2016 | F 2016 | S 2017 | F 2017 | S 2018 | F 2018 | S 2019 |
| | **BIOL 16Y - Ecology of Selected Wilderness Ecosystems** | | C - Completed, P- Planned | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of selected Wilderness Ecosystems. | A,D,E | | | | | | | | | | | | |
| CSLO 2 | Appraise the ecological and geographical principles that affect the environments of selected Wilderness Ecosystems. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms living in selected Wilderness Ecosystems. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Compose a detailed field journal reflective of the field trip experience to the environments of selected Wilderness Ecosystems. | A,B,D,E | | | | | | | | C | | | | |
| | **BIOL 16Z - Ecology of the American River** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of the American River. | A,D,E | | | | | | | | C | | | | |
| CSLO 2 | Appraise the ecological and geological principles that affect the natural history of the American River. | A,C,D | | | | | | | | C | | | | |
| CSLO 3 | Hypothesize the factors that have shaped the evolutionary adaptations of the organisms of the American River. | A,C,D | | | | | | | | C | | | | |
| | **BIOL 17B - Ecology of the Sutter Buttes** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate the impacts of humans on the environments of the Sutter Buttes. | D,E | | | | | | | | | | | | |
| CSLO 2 | Identify the ecological and geological principles that affect the ecosystem of the Sutter Buttes. | C,D,E | | | | | | | | | | | | |
| CSLO 3 | Document, in detail, the experience of the field trip to the Sutter Buttes. | C,D | | | | | | | | | | | C | |
| | **BIOL 21 - Introduction to Plant Science** (Also known as AGRI 156) | | | | | | | | | | | | | |
| CSLO 1 | Relate plant anatomy & physiology, including structural and reproductive systems, plant metabolism and growth and development, to agricultural management practices. | C | | | | | | | C | | | | | |
| CSLO 2 | Identify and define major plant growth factors of soils, their role in plant growth and development, and describe how each may be managed for better plant performance. | D | | | | | | | | | | | | |
| CSLO 3 | Compare various methods growers use to manipulate plant physiological processes for increased plant productivity and quality and assess economic, environmental and social issues related to each. | E | | | | | | | | | | | | |

# BIOLOGY Program

## ISLOs, PSLOs, CSLOs, Mapping, and Assessment Plan

| | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | | Year 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | F 2013 | S 2014 | F 2014 | S 2015 | F 2015 | S 2016 | F 2016 | S 2017 | F 2017 | S 2018 | F 2018 | S 2019 |
| | **BIOL 23 - Wildflower Identification** (Also known as AGRI 182) | | C - Completed, P- Planned | | | | | | | | | | | |
| CSLO 1 | Differentiate the eight parts of a flower's reproductive system and describe their role in reproduction. | C,D | | | | C | | | | | | | | |
| CSLO 2 | Outline general taxonomy and nomenclature within plant kingdom. | C,D | | | | C | | | | | | | | |
| CSLO 3 | Distinguish at least ten different flowering plant families. | C,D | | | | C | | | | | | | | |
| CSLO 4 | Recognize characteristics and identify by sight at least fifteen local wildflowers. | C,D | | | | C | | | | | | C | | |
| CSLO 5 | Using dichotomous keys, identify 10 wildflower species in the field. | C,D | | | | C | | | | | | | | |
| | **BIOL 24 - Wildland Trees and Shrubs** (Also known as AGRI 163) | | | | | | | | | | | | | |
| CSLO 1 | Demonstrate the use of dichotomous key and field guides and apply their use to the identity of family, scientific, and common names the major tree and shrub species found in California forests. | A,B,C,D | | | | | | | | | | | | |
| CSLO 2 | Assess basic ecological requirements of common forest trees in North American forests with particular emphasis on California. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Differentiate and describe the value, uses, and geographic range of common trees and shrubs in the Western United States. | A,C,D | | | | | | | | | | | | |
| CSLO 4 | Summarize the relationships of forest species to the overall evolution and ecology of world forests. | A,D,E | | | | | | | | | | | | |
| CSLO 5 | Demonstrate ability to work in small groups to collect, mount, identify, compile, and display plant collections. | A,B,D | | | C | | | | | | C | | | |
| | **BIOL 28 - Independent Study** | | | | | | | | | | | | | |
| CSLO 1 | Develop, implement and evaluate an independent study project with written goals and objectives. | A,B,D | | | | | | | | C | | | | |
| CSLO 2 | Demonstrate through the submission of a completed research project increased knowledge, understanding and skills related to the subject area. | A,B,E | | | | | | | | | | | | |
| CSLO 3 | Evaluate the project success with the instructor. | A,B,C,D | | | | | | | | | | | | |
| | **BIOL 30 - Introduction to Ornithology** | | | | | | | | | | | | | |
| CSLO 1 | Outline the key characteristics and evolutionary adaptations found in birds. | C,D | | | | | | | | | | | | |
| CSLO 2 | Investigate common field and laboratory techiniques used in ornithology. | A,D | | | | | | | | | | | | |
| CSLO 3 | Identify and describe examples of regional representatives of the major taxonomic groups. | C,D | | | | | | | | | | | | |
| CSLO 4 | Evaluate the effectiveness of current local, state, and federal bird conservation programs. | B,E | | | | | | | | | | | | |

# BIOLOGY Program

## ISLOs, PSLOs, CSLOs, Mapping, and Assessment Plan

| | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | | Year 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | F 2013 | S 2014 | F 2014 | S 2015 | F 2015 | S 2016 | F 2016 | S 2017 | F 2017 | S 2018 | F 2018 | S 2019 |
| | **BIOL 33 - Introduction to Zoology** | | C - Completed, P- Planned | | | | | | | | | | | |
| CSLO 1 | Evaluate similarities and differences between single- and multi-cellular organisms. | C,D | | | | | | | | | C | | | |
| CSLO 2 | Compare and contrast the basic protostome, deuterostome, coelomate, pseudocoelomate, and acoelomate animal body plans. | C,D | | | | | | | | | | | | |
| CSLO 3 | Evaluate the key evolutionary adaptations exhibited by the major animal phyla. | A,B,C,D | | | C | | | | | | | | | |
| CSLO 4 | Investigate the ways in which humans and other animals interact with each other and their environment. | C,E | | | | | | | | | | | | |
| | **BIOL 35 - Introduction to Entomology** | | | | | | | | | | | | | |
| CSLO 1 | Outline the key characteristics and evolutionary adaptations found in insects. | C,D | | | | | | | | | | | | |
| CSLO 2 | Identify and describe examples from the major orders of insects. | C,D | | | | | | | | | | | | |
| CSLO 3 | Investigate the interactions and ecological relationships between humans and insects. | E | | | | | | | | | C | | | |
| | **BIOL 36 - Introduction to Mammalogy** | | | | | | | | | | | | | |
| CSLO 1 | Outline the key characteristics and evolutionary adaptations found in mammals. | C,D | | | | C | | | | | | | | |
| CSLO 2 | Identify and describe examples of regional representatives of the major taxonomic groups. | C,D | | | | | | | | | | C | | |
| CSLO 3 | Investigate the ways in which humans and other mammals interact with each other and their environment. | C,E | | | | | | | | | | | | |
| | **BIOL 55 - General Human Anatomy and Physiology** | | | | | | | | | | | | | |
| CSLO 1 | Describe and categorize the key structural features of different human cells, major tissue types and subtypes, and identify locations in the body where each is located. | A,C,D | | | | | | | | | | | | |
| CSLO 2 | Identify, describe and compare the anatomical location, histology and gross anatomical structure of all human body systems in appropriate detail for a non-majors anatomy and physiology course. | A,C,D | | | | | | | | | | | | |
| CSLO 3 | Describe and compare the physiology of all human body systems in appropriate detail for a non-majors anatomy and physiology course. | A,C,D | | | | C | | | | | | | | |
| CSLO 4 | Compare structure and function of all human body systems from the cellular through system levels of organization. | A,C,D | | | | C | | | | | | C | | |
| CSLO 5 | Demonstrate proper lab safety, dissecting techniques, and handling of models and physiology lab equipment. | A,C,D | | | | | | | | | | | | |

# BIOLOGY Program

## ISLOs, PSLOs, CSLOs, Mapping, and Assessment Plan

| | | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | | Year 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | F 2013 | S 2014 | F 2014 | S 2015 | F 2015 | S 2016 | F 2016 | S 2017 | F 2017 | S 2018 | F 2018 | S 2019 |
| | **BIOL 56 - Biology: A Human Perspective** | | C - Completed, P- Planned | | | | | | | | | | | |
| CSLO 1 | Describe the structure and function of eukaryotic cells and their cellular processes. | C | | | | C | | | | | | C | | |
| CSLO 2 | Explain the process of inheritance; how the genetic code determines cell structure and function, and the role it plays in evolutionary processes. | C | | | | C | | | | | | | | |
| CSLO 3 | Compare structure and function of human body systems from chemical through system levels of organization. | C | | | | C | | | | | | | | |
| CSLO 4 | Evaluate the past, present and future effect of human activities on ecological systems. | E | | | | C | | | | | | | | |
| CSLO 5 | Evaluate the biological, ethical, and social dimensions of current advancements in biotechnology. | E | C | | | C | | | | | | | | |
| | **BIOL 56L - Biology: A Human Perspective (Laboratory)** | | | | | | | | | | | | | |
| CSLO 1 | Apply the scientific method and philosophy of science to design and carry out biological experiments. | A | | | | | | | | | | | | |
| CSLO 2 | Analyze experimental data and draw valid conclusions. | A,D | | | | | | | | | | C | | |
| CSLO 3 | Demonstrate proper lab safety, dissecting techniques, and handling of models and lab equipment. | D | | | | | | | | | | | | |
| CSLO 4 | Compare structure and function of human body systems from chemical through system levels of organization. | C | | | | C | | | | | | | | |
| | **BIOL 95 - Internship in Biological Sciences** | | | | | | | | | | | | | |
| CSLO 1 | Evaluate potential internship opportunities in terms of meeting personal and career growth needs by completing and submitting required internship paperwork. | B,E | | | | | | | | | | | | |
| CSLO 2 | Apply the requirements and procedures learned in the mandatory orientation to the internship experience. | D,E | | | | | | | | | | | | |
| CSLO 3 | Establish two on-the-job learning objectives that are related to new or expanded responsibilities or that contribute to current occupational or educational goals. | A,B,D | | | | | | | | | | | | |
| CSLO 4 | Through work experience, under the direction of worksite supervisor, perform duties related to learning objectives. | A,B,D | | | | C | | | | | | | | |
| CSLO 5 | Evaluate learning experience in writing or by project related to learning objectives. | B,D | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| **CSLO#** | **COURSE NUMBER: COURSE NAME** | **Related PSLO** | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
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