

Course SLOs aligned with Program SLOs

San Mateo CCCD

CAN Program - Biological Sciences

Use the Scientific Method to investigate biological questions and critically evaluate and effectively communicate scientific data.

CAN Dept - Biological Sciences

CAN BIOL 100 - Intro To Life Sciences

Course Outcomes:

- *organize data - Effectively organize and present scientific information to a group. (Created By CAN Dept - Biological Sciences)

CAN BIOL 103 - Native Plants and Wildflowers

Course Outcomes:

- * Analytical Skills - Organize, analyze, and successfully communicate scientific data with clear and meaningful explanations and evaluation. (Created By CAN Dept - Biological Sciences)
- * Field Identification - Identify plants in the field using the knowledge of structures. (Created By CAN Dept - Biological Sciences)
- * Scientific Method - Demonstrate the ability to formulate hypotheses and be able to use the scientific method to investigate biological processes and phenomenon. (Created By CAN Dept - Biological Sciences)

CAN BIOL 110 - Principles Of Biology

Course Outcomes:

- * Scientific method - 6. Apply the scientific method of observation, hypothesis, prediction, experimentation, and interpretation of results. (Created By CAN Dept - Biological Sciences)

CAN BIOL 132 - Human Biology Laboratory

Course Outcomes:

- * data, graphs - create and interpret graphs and tables with data (Created By CAN Dept - Biological Sciences)
- * genetic inheritance - analyze inheritance of traits using genetic data (Created By CAN Dept - Biological Sciences)
- * scientific method - apply all steps of the scientific method to answer questions and solve problems. (Created By CAN Dept - Biological Sciences)

CAN BIOL 225 - Biology Of Organisms

Course Outcomes:

- * scientific method - Explain and practice the scientific method of inquiry. (Created By CAN Dept - Biological Sciences)

CAN BIOL 230 - Cell and Molecular Biology

Course Outcomes:

- * data analysis and communication - Organize and analyze qualitative and quantitative data into cohesive and well-written laboratory reports that properly reference relevant scientific literature. (Created By CAN Dept - Biological Sciences)
- * laboratory competency - Use current laboratory techniques and apply the scientific method to identify and isolate various biological macromolecules and organelles, and to analyze enzyme activity and metabolic pathways. (Created By CAN Dept - Biological Sciences)
- * mitosis, meiosis, and Mendel - Compare and contrast chromosome movement in mitosis and meiosis, and demonstrate how molecular mechanisms of chromosomal behavior explain Gregor Mendel's experimental results as well as deviations from his ratios. (Created By CAN Dept - Biological Sciences)

CAN BIOL 240 - General Microbiology

Course Outcomes:

- * analysis and communication - Organize and analyze qualitative and quantitative data into cohesive and well-written laboratory reports that properly reference relevant scientific literature. (Created By CAN Dept - Biological Sciences)
- * laboratory competency - Use proper laboratory procedures to successfully culture, isolate, and characterize various species of bacteria. (Created By CAN Dept - Biological Sciences)

CAN BIOL 260 - Human Physiology

Course Outcomes:

- * clinical competency - Demonstrate competency in the use of laboratory equipment to accurately measure human physiological processes, such as radial or carotid pulse, blood pressure, EMG, ECG, Respirometry, Urometry, and Glucometry. (Created By CAN Dept - Biological Sciences)
- * scientific analysis - Propose and/or execute laboratory experiments in physiology. Analyze, interpret and effectively communicate results from these experiments. (Created By CAN Dept - Biological Sciences)
- * teamwork - Demonstrate proper and effective interpersonal conduct and teamwork while performing laboratory experiments and writing cohesive lab reports. (Created By CAN Dept - Biological Sciences)

Recognize and explain the evolutionary connections between biological structures and their function and between

organisms and their environment.

CAN Dept - Biological Sciences

CAN BIOL 100 - Intro To Life Sciences

Course Outcomes:

- * ecology - Discuss ecological principles that influence plant and animal interactions within ecosystems, communities, and populations. (Created By CAN Dept - Biological Sciences)
- * genetics - Explain the functions of genes and their role in inheritance and evolution. (Created By CAN Dept - Biological Sciences)
- * processes of life - Describe essential biological structures and processes that occur at the molecular, cellular, and organismal levels that enable life. (Created By CAN Dept - Biological Sciences)
- * traits of life - Identify and explain how the key characteristics of all living things are essential to life. (Created By CAN Dept - Biological Sciences)

CAN BIOL 103 - Native Plants and Wildflowers

Course Outcomes:

- * Botanical Nomenclature - Understand and use the correct scientific names and levels of classification to communicate the identity and relationships among native Californian Plants. (Created By CAN Dept - Biological Sciences)
- * Dichotomous keys - Understand the principles behind dichotomous keys and be able both to create a simple key and use keys in the field to identify plants. (Created By CAN Dept - Biological Sciences)
- * Endemism and adaptations - Explain the concept of endemism in terms of natural selection and adaptations to particular climate and soil types. (Created By CAN Dept - Biological Sciences)
- * Form and Function - Recognize and explain the interconnections between several biological/biochemical structures and their biological functions. (Created By CAN Dept - Biological Sciences)

CAN BIOL 110 - Principles Of Biology

Course Outcomes:

- * ecology - 4. Discuss ecological principles that influence plant and animal interactions within ecosystems, communities, and populations. (Created By CAN Dept - Biological Sciences)
- * genetics - 3. Discuss the functions of genes and their role in inheritance and evolution. (Created By CAN Dept - Biological Sciences)
- * life processes - 2. Describe essential biological structures and processes that occur at the molecular, cellular, and organismal levels that enable life. (Created By CAN Dept - Biological Sciences)
- * traits of life - 1. Describe key characteristics of all living things (Created By CAN Dept - Biological Sciences)

CAN BIOL 130 - Human Biology

Course Outcomes:

- * genetics, disease, evolution - Explain the role of genetics and environment in health, disease, and evolution. (Created By CAN Dept - Biological Sciences)
- * organ systems - Describe the basic structure and physiology of human organ systems and how they function to maintain life. (Created By CAN Dept - Biological Sciences)
- * vital processes - Describe essential biological structures and processes that occur at the molecular and cellular levels and explain how they enable life. (Created By CAN Dept - Biological Sciences)

CAN BIOL 132 - Human Biology Laboratory

Course Outcomes:

- * ID anatomy - identify gross anatomical features of human organ systems and cells of each tissue type. (Created By CAN Dept - Biological Sciences)

CAN BIOL 225 - Biology Of Organisms

Course Outcomes:

- * adaptive behavior - Analyze behavioral adaptations of organisms and their basis. (Created By CAN Dept - Biological Sciences)
- * embryogenesis - Describe embryonic development of animals and plants and explain its significance. (Created By CAN Dept - Biological Sciences)
- * mechanisms of evolution - Discuss how mechanisms, including natural selection, affect evolution. (Created By CAN Dept - Biological Sciences)
- * organ systems and homeostasis - Compare the various structures of diverse organisms and explain how they are used to maintain essential life processes. (Created By CAN Dept - Biological Sciences)
- * traits of phyla - Describe key characteristics of different phyla and discuss their phylogeny. (Created By CAN Dept - Biological Sciences)

CAN BIOL 230 - Cell and Molecular Biology

Course Outcomes:

- * gene and cell cycle regulation - Provide specific examples to describe the various levels of eukaryotic gene regulation and cell cycle regulation, and explain how these molecular mechanisms usually ensure successful reproduction of healthy cells. (Created By CAN Dept - Biological Sciences)
- * genetics and evolution - Compare and contrast the various processes of gene expression, genetic transfer, and gene regulation in bacterial and eukaryotic cells, and relate them to biological evolution and metabolism. (Created By CAN Dept - Biological Sciences)

- * mitosis, meiosis, and Mendel - Compare and contrast chromosome movement in mitosis and meiosis, and demonstrate how molecular mechanisms of chromosomal behavior explain Gregor Mendel's experimental results as well as deviations from his ratios. (Created By CAN Dept - Biological Sciences)
- * subcellular structures and function - Describe and distinguish between the major macromolecules and subcellular structures in bacteria and eukaryotic cells, and explain how these structures determine associated functions in an organism. (Created By CAN Dept - Biological Sciences)

CAN BIOL 240 - General Microbiology

Course Outcomes:

- * genetics and evolution - Compare and contrast the various processes of genetic transfer, gene expression, and gene regulation in microbial cells and relate them to microbial evolution, growth and metabolism. (Created By CAN Dept - Biological Sciences)
- * metabolic enzymes - Describe and explain how enzymes function in metabolic pathways during the transformation of energy and organic matter (especially carbon) by cells. (Created By CAN Dept - Biological Sciences)
- * subcellular structures and function - Describe and distinguish between the major macromolecules and subcellular structures in bacteria and eukaryotic cells, and explain how these structures determine associated functions in an organism. (Created By CAN Dept - Biological Sciences)

CAN BIOL 250 - Human Anatomy

Course Outcomes:

- * changes through lifespan - Describe the anatomical changes that occur throughout the human lifespan. (Created By CAN Dept - Biological Sciences)
- * form and function - Explain how the shape and composition of anatomical structures determine their function. (Created By CAN Dept - Biological Sciences)
- * gross and microscopic - Describe the gross and microscopic anatomical features of human organ systems. (Created By CAN Dept - Biological Sciences)
- * identify structures - Recall and identify anatomical structures from images, models, specimens and human cadavers. (Created By CAN Dept - Biological Sciences)

CAN BIOL 260 - Human Physiology

Course Outcomes:

- * gradients - Describe the role of electrical, chemical, electrochemical, and pressure gradients in driving physiological processes. (Created By CAN Dept - Biological Sciences)
- * homeostatic control systems - Describe the coordinated responses of physiologic systems to maintain homeostasis and to regulate change and growth. (Created By CAN Dept - Biological Sciences)
- * membrane potential - Explain the basis of membrane potentials and their significance to physiologic control systems (Created By CAN Dept - Biological Sciences)
- * metabolism and exercise - Describe how multiple physiologic systems integrate their responses to maintain control of metabolism and exercise. (Created By CAN Dept - Biological Sciences)

Critically evaluate biological information and examine its significance and impact on society and the environment.

CAN Dept - Biological Sciences

CAN BIOL 100 - Intro To Life Sciences

Course Outcomes:

- * analyze science info - Gather and evaluate information to analyze contemporary issues in science. (Created By CAN Dept - Biological Sciences)
- * ecology - Discuss ecological principles that influence plant and animal interactions within ecosystems, communities, and populations. (Created By CAN Dept - Biological Sciences)

CAN BIOL 103 - Native Plants and Wildflowers

Course Outcomes:

- * Human Uses of Plants - Understand and be able to explain the properties of plants that have proven to be useful to Native Californians. (Created By CAN Dept - Biological Sciences)

CAN BIOL 110 - Principles Of Biology

Course Outcomes:

- * analyze info - 5. Gather, evaluate, and effectively organize information to analyze contemporary issues in science. (Created By CAN Dept - Biological Sciences)

CAN BIOL 130 - Human Biology

Course Outcomes:

- * analyze issue - Find, evaluate the validity of, and analyze information about contemporary topics in human biology. (Created By CAN Dept - Biological Sciences)
- * disease - Explain how malfunctions of these organ systems can cause disease. (Created By CAN Dept - Biological Sciences)
- * genetics, disease, evolution - Explain the role of genetics and environment in health, disease, and evolution. (Created By CAN Dept - Biological Sciences)

CAN BIOL 132 - Human Biology Laboratory

Course Outcomes:

* genetic inheritance - analyze inheritance of traits using genetic data (Created By CAN Dept - Biological Sciences)

CAN BIOL 230 - Cell and Molecular Biology

Course Outcomes:

* transformation of energy - Describe and explain how enzymes and specific organelles function in catabolic and anabolic (photosynthetic) pathways during cellular transformation of energy and organic matter. (Created By CAN Dept - Biological Sciences)

CAN BIOL 240 - General Microbiology

Course Outcomes:

* classification and impact on health - Compare and contrast the major classes of bacterial, eukaryotic, and acellular microbes and their relationships to human and/or environmental health. (Created By CAN Dept - Biological Sciences)

* immune response - Compare and contrast specific mechanisms of innate and acquired immunity in humans, and describe how each aids in defense against specific infectious diseases of major organ systems. (Created By CAN Dept - Biological Sciences)

CAN BIOL 250 - Human Anatomy

Course Outcomes:

* cadaver appreciation - Develop respect and appreciation for the gift of human cadavers; explain and defend their use in anatomy education. (Created By CAN Dept - Biological Sciences)

CAN BIOL 260 - Human Physiology

Course Outcomes:

* application to lifestyle - Apply knowledge of physiologic processes to develop a healthy lifestyle, and predict the likely impact of unhealthy practices on bodily well-being. (Created By CAN Dept - Biological Sciences)

* information competency - Research, summarize and cite articles from peer-reviewed scientific literature. (Created By CAN Dept - Biological Sciences)

CAN BIOL 310 - Nutrition

Course Outcomes:

* Apply nutrition to own diet - Students should be able to apply to their own diets the knowledge of the Food Guide Pyramid, the major nutrients, recommended servings and quantities of servings. (Created By CAN Dept - Biological Sciences)

* information competency - Students can differentiate between scientific, evidence-based nutrition information and nutrition fads. (Created By CAN Dept - Biological Sciences)

* nutrition labels - Students will be able to accurately analyze the nutrition labeling of food products and interpret the information. (Created By CAN Dept - Biological Sciences)