BIOLOGY (BIO)

BIO 1101 Biological Fundamentals (5 Credits)
Intended for non-biology majors. This course is focused on fundamental biological principles. Emphasis varies quarterly: animal biology, biological diversity, marine biology, and others. Basic concepts include Mendelian genetics and evolutionary theory. Biological theories and laws are related to Christian perspectives.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%201101)

BIO 1104 Environmental Science (5 Credits)
Intended for non-majors. This course, held at our Blakely Island Field Station, introduces environmental science and ways that humans interact with the natural world. Topics covered may include geology, global climate, ocean chemistry, and fisheries and forest management. We will examine these topics with a multi-disciplinary approach, employing not only science but also economics and political science.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%201104)

BIO 1105 Marine Restoration Ecology (5 Credits)
Principles of marine restoration ecology as well as supporting system-specific content to support a specific marine restoration project will be examined. For example, this course is offered as a study-abroad opportunity in Bali, Indonesia where coral reef restoration in an area damaged by cyanide fishing will be used as a focal project. The economic, political, and sociological drivers of human-environment interactions will be considered.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%201105)

BIO 1106 Ecological Fundamentals (5 Credits)
Intended for non-biology majors. This course will focus on the biological field of ecology, which investigates the interactions between living things and their environment. Topics to be covered may include population growth, community interactions (e.g., predation and competition), ecosystem services (e.g., nutrient cycling), and global ecology (e.g., climate change). Ecological principles will be connected to theological principles with particular focus on the development of scientifically informed Creation care.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%201106)

BIO 1107 Introduction to Forensic Science (5 Credits)
This course examines the principals, theories and practices of forensic science utilized within the law enforcement community and the American legal system. Forensic science is the study and application of science to the process of law and involves the collection, examination, evaluation and interpretation of evidence. Students will gain a basic understanding of the scientific and analytical approach to determining the value of evidence as it relates to the court of law, with special attention to forensic anthropology. Typically offered: Alternate Years, Spring.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%201107)

BIO 1121 Coral Reef Ecology (5 Credits)
This course examines the structure and function of living organisms and how these organisms interact with their environment, using the Belizean Coral Reef ecosystem as a model. The diversity of fishes, algae, seaweeds, corals, and other organisms will be considered. Typically offered: Alternate Years, Winter.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%201121)

BIO 1130 Advanced Open Water Diving (1 Credit)
This course provides the classroom knowledge to obtain certification as an Advanced Open Water Diver. Students will learn about the intricacies of deep diving (up to 100 feet), how to navigate under water, and several other specialty diving topics. While not required, students will have an opportunity to conduct 5 open water dives leading to certification. Students must hold certification as an Open Water SCUBA Diver or equivalent. Students will need to purchase materials and, if needed, rent equipment for this course from a designated dive shop. Typically offered: Autumn, Spring, Summer, Winter.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%201130)

BIO 1145 Oceanography (5 Credits)
An integrative course focused on fundamental biological, chemical, physical and geological principles of oceanography. Includes consideration of the scientific method and current research.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%201145)

BIO 1859 Biology Cornerstone Seminar (1 Credit)
A gateway to the study of biology intended for all students who plan to major in biology. Emphasis is on building successful networks between freshmen and upperclassmen Biology students and Biology faculty. Students will participate in workshops on degree planning, discussion of research papers and career discernment.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%201859)

BIO 2101 General Biology (5 Credits)
Intended for students majoring in biology. Surveys scientific method, chemistry of living organisms, organization of cells, and foundations of genetics and molecular biology. Includes laboratory.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%202101)

BIO 2101L General Biology Lab (0 Credit)
Lab Component of BIO 2101.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%202101L)

BIO 2102 General Biology (5 Credits)
Intended for students majoring in biology. Surveys animal classification, structure, function, development, and behavior. Includes laboratory. Typically offered: Winter, Spring.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%202102)

BIO 2102L General Biology Lab (0 Credit)
Lab Component of BIO 2102.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%202102L)

BIO 2103 General Biology (5 Credits)
Intended for students majoring in biology. Surveys the non-animal kingdoms. Also covers plant structure and function, evolutionary mechanisms, and ecology. Includes laboratory. Typically offered: Autumn, Spring.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%202103)

BIO 2103F General Biology Field Experience (0 Credit)
Field experience for BIO 2103.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%202103F)

BIO 2103L General Biology Lab (0 Credit)
Lab Component of BIO 2103.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%202103L)

BIO 2129 Human Anatomy and Physiology (5 Credits)
Studies the structure and function of the human organism. Includes cells and tissues, skeletal, integumentary, muscular, and nervous systems. Includes laboratory. Credit will not be given for both BIO 2129 and BIO 4410. Typically offered: Autumn, Summer.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%202129)

BIO 2129L Human Anatomy Physiology Lab (0 Credit)
Lab Component of BIO 2129.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%202129L)

BIO 2130 Human Anatomy and Physiology (5 Credits)
Studies the structure and function of the human organism. Emphasizes the circulatory, immune, respiratory, digestive, endocrine, urinary, and reproductive systems. Includes laboratory. Credit will not be given for both BIO 2130 and BIO 4410.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%202130)

BIO 2130L Human Anatomy Physiology Lab (0 Credit)
Lab Component of BIO 2130.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%202130L)

BIO 2571 Introduction to Biology (5 Credits)
Intended for students majoring in Integrated Studies. Surveys scientific method, chemistry of living organisms, organization of cells, foundations of genetics and molecular biology, evolution, ecology, and diversity. Includes laboratory.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%202571)

BIO 2571F Introduction to Biology: Field Experience (0 Credit)
Field experience for BIO 2571.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%202571F)

BIO 2571L Introduction to Biology Lab (0 Credit)
Lab Component of BIO 2571.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%202571L)

BIO 2950 Special Studies in Biology (1-4 Credit)
Provides opportunity for in-depth exploration of topics and skills in Biology. Typically offered: Occasionally, Autumn, Spring, Winter.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%202950)

BIO 2979 Introduction to Biological Research (1 Credit)
The student will conduct research in a laboratory based on an existing project established by the faculty member as an introduction to the process of research in general and to that faculty member's research in particular.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%202979)

BIO 3000 Introduction to Biological Anthropology (5 Credits)
Introduces basic principles for understanding humans from a biological perspective. This course is a comprehensive introduction to the field of biological anthropology. Explores topics of human and non-human primate genetics, behavior, and evolution, as well as human ecology and medical anthropology. Typically offered: Autumn.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203000)

BIO 3130 Scientific Diving (4 Credits)
Students in this class will be trained in first aid, CPR, emergency oxygen provision, rescue diving, and the history, regulations, and techniques of scientific diving. Successful students will earn certifications as an Emergency First Responder and an Emergency Oxygen Provider. Students will not be required to dive, but if they choose to do so they will have the opportunity to earn certification as a Rescue Diver. Students must hold an Advanced Open Water Diver certification or its equivalent prior to enrolling. Students should also own their own SCUBA equipment except for tanks or be prepared to rent such equipment for two weeks. Typically offered: Summer.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203130)

BIO 3200 Geographic Information Systems in Biology (3 Credits)
This course provides an introduction to the use of Geographic Information Systems. Specifically, the student will learn how to use ArcGIS with prepared data sets and will create their own GIS database based on field observations as a term project.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203200)

BIO 3302 Coral Reef Ecology (5 Credits)
This study abroad course examines the coral reef ecosystem, with a special emphasis on the coral animals, fish, and seaweeds found at the study site. The interactions among different species and between each and the physical environment are considered. Students learn through evening lectures as well as daytime observations, measurements and manipulative experiments. Typically offered: Occasionally.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203302)

BIO 3303 Evolutionary Ecology in the Galapagos Islands (5 Credits)
This is a study tour of the Galapagos Islands. During the course, we will explore the marine and terrestrial ecosystems of the Galapagos Islands, emphasizing the evolutionary and ecological factors that structure these communities. Typically offered: Alternate Years, Spring.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203303)

BIO 3304 Oceanography of the Galapagos Archipelago (5 Credits)
This is a study tour of the Galapagos Islands. During the course we will explore the interdisciplinary study of oceanography within the context of the Galapagos Archipelago. Topics will include geologic formation of islands, oceanic currents, major climatic events, nutrient cycling and marine biodiversity. Typically offered: Alternate Years, Spring.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203304)

BIO 3305 Marine Restoration Ecology (5 Credits)
Principles of marine restoration ecology as well as supporting system-specific content to support a specific marine restoration project will be examined. For example, this course is offered as a study-abroad opportunity in Bali, Indonesia where coral reef restoration in an area damaged by cyanide fishing will be used as a focal project. The economic, political, and sociological drivers of human-environment interactions will be considered.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203305)

BIO 3310 Ecology (5 Credits)
Explores the factors and mechanisms responsible for population dynamics, community structure, and the function of ecosystems. Includes laboratory. Typically offered: Autumn, Spring.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203310)

BIO 3310F Ecology Field Experience (0 Credit)
Field experience for BIO 3310.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203310F)

BIO 3310L Ecology Lab (0 Credit)
Lab Component of BIO 3310.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203310L)

BIO 3325 Genetics (5 Credits)
Introduces inheritance of specific traits through the study of transmission genetics. Focuses on the biology of gene transmission, nucleic acids, chromosome structure, regulation, epigenetics, genetic disease, and biotechnology. Research methods are stressed throughout the course. Typically offered: Autumn, Winter.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203325)

BIO 3325L Genetics Lab (0 Credit)
Lab Component of BIO 3325.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203325L)

BIO 3350 Immunology (3 Credits)
Covers major features of innate and adaptive immunity including: Antibodies, T cell receptors, leukocyte development, responses to bacterial and viral infections, vaccines, and disorders of the immune system such as allergy, autoimmunity, and AIDS.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203350)

BIO 3351 General Microbiology (5 Credits)
Clinically focused overview of the field of microbiology with an emphasis on the bacterial, viral and fungal organisms that cause disease in humans. Required laboratory focuses on the appropriate handling, growth, and identification of microorganisms in clinical applications.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203351)

BIO 3351L General Microbiology Lab (0 Credit)
Lab Component of BIO 3351.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203351L)

BIO 3432 Biodiversity: Vertebrate Biology (5 Credits)
Examines vertebrate life in an evolutionary context through the study of adaptations, comparative anatomy, paleontology, and natural history. Includes laboratory.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203432)

BIO 3432L Biodiversity: Vertebrate Biology Lab (0 Credit)
Lab Component of BIO 3432.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203432L)

BIO 3434 Animal Behavior (5 Credits)
Examines the mechanisms and evolution of behavior in the major animal groups, exploring the application of scientific thinking and methodology to the study of animal behavior. Includes laboratory/discussion. Intended for students that have/will not take BIO 3436. Typically offered: Spring.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203434)

BIO 3434L Animal Behavior Lab (0 Credit)
Lab Component of BIO 3434.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203434L)

BIO 3436 Behavioral Ecology (5 Credits)
Examines the proximate and ultimate causes of behavior in the major animal groups. This field course uses techniques in behavioral ecology to explore the application of scientific thinking and methodology to the study of animal behavior. This field course will focus on understanding animal communication, habitat selection, feeding behavior and predator/prey interactions, altruistic behavior, sexual selection and mating systems, and parental care. No credit will be given for students who have taken BIO 3434. Typically offered: Summer.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203436)

BIO 3453 Biodiversity: Plant Identification and Taxonomy (5 Credits)
Explores sampling, identification, and systematics of the major plant families with special emphasis on the flora of the Pacific Northwest. Includes laboratory/field studies. Typically offered: Spring.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203453)

BIO 3453F Biodiversity: Plant Identification and Taxonomy-Field Experience (0 Credit)
Field experience for BIO 3453.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203453F)

BIO 3453L Biodiversity: Plant Identification and Taxonomy Lab (0 Credit)
Lab Component of BIO 3453.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203453L)

BIO 3835 Theological Ecology (5 Credits)
As humans we are called to tend and keep creation, but effectively caring for creation requires a knowledge of how and why creation was intended to function. As such, this course will cover ecological topics such as speciation, extinction, predation, competition, and evolution. This course will also investigate anthropogenic alterations to creation, such as climate change and biodiversity loss. Further, this course will investigate theological explanations for the existence of creation, the fall of creation, and our vocational call toward the reconciliation of all creation. Typically offered: Alternate Years, Winter.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203835)

BIO 3896 Medical Terminology (2 Credits)
This course is designed to provide students with an understanding of basic medical terminology so that they can use this vocabulary in the health care setting. Medical terms associated with body systems, disease processes, laboratory tests, and clinical procedures commonly found in the health care setting will be explored. Rather than memorizing hundreds or thousands of words we will learn how to break apart a medical word into its parts (e.g. prefix, root, suffix). Students will read and analyze medical journal articles to practice utilizing medical terminology. Typically offered: Winter.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203896)

BIO 3898 Women in Science (2 Credits)
This course will explore key scientific discoveries with a specific focus on the work of women scientists and the ways in which our understanding of the world has been heavily impacted by successes of these scientists. This course takes both a historical and current perspective to the contributions women scientists have made to their specific fields, including chemistry, physics, engineering, anthropology, and biology.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203898)

BIO 3899 Scientific Literature (1 Credit)
Students will read, discuss and present recent peer-reviewed journal articles in a selected subdiscipline of biology. The focus of the course will change from quarter to quarter, depending on the interests of the professor and students. Typically offered: Autumn, Spring, Winter.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%203899)

BIO 4256 Environmental Physiology (5 Credits)
This course focuses on how individuals respond physiologically to their environment especially to maintain homeostasis and acquire nutrients. Topics covered will include circadian rhythms and responses to various stressors (e.g. light, heat, salinity, climate change, hypoxia). Two recurring themes will include discussion of the way in which organisms balance acclimation and adaptation; and the manner in which organisms balance tradeoffs. Typically offered: Autumn, Summer.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204256)

BIO 4320 Principles of Development (5 Credits)
Surveys principles of developmental biology in representative vertebrate and invertebrate models. Required laboratory is devoted to experimental and descriptive approaches to the study of development. Typically offered: Spring.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204320)

BIO 4320L Principles of Development Lab (0 Credit)
Lab Component of BIO 4320. Typically offered: Spring.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204320L)

BIO 4325 Molecular Biology (5 Credits)
Detailed examination of the molecular mechanisms controlling the replication, regulation and function of nucleic acids in prokaryotes and eukaryotes. Explores foundational principles of molecular genetics, molecular microbiology, genomics and genetic engineering including the central dogma, gene regulation, genomics, biotechnology and associated techniques used by researchers in these fields. Advanced research topics in molecular microbiology will be addressed in the context of an original research project. Includes intensive laboratory.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204325)

BIO 4325L Molecular Biology Lab (0 Credit)
Lab Component of BIO 4325.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204325L)

BIO 4330 Evolutionary Mechanisms (5 Credits)
Explores population genetics as a mechanism of evolutionary change, emphasizing mutation, recombination, and selection. Considers speciation, quantitative genetics, neutral theory, phylogenetic systematics, history, and extinction. Includes discussion of micro-evolutionary and macro-evolutionary changes. Includes laboratory.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204330)

BIO 4330L Evolutionary Mechanisms Lab (0 Credit)
Lab Component of BIO 4330.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204330L)

BIO 4352 Cell Biology (5 Credits)
This course will examine eukaryotic cell structure and function. Overarching themes include cellular organelles, interaction of cells with the extracellular environment, cell-cell interactions, cellular movement, and cellular signaling. Includes laboratory.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204352)

BIO 4352L Cell Biology Lab (0 Credit)
Lab Component of BIO 4352.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204352L)

BIO 4360 Biostatistics (5 Credits)
Explores the nature and use of measurement and evaluation and standardized testing. Develops concepts and skills in the development, selection, administration, and interpretation of statistical tests. Specific topics covered may include the following: Analysis of variance and covariance; chi square tests; nonparametric procedure multiple and curvilinear regression; experimental design power of tests; and use of computer programs in standard statistical problems. Typically offered: Winter.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204360)

BIO 4361 Biochemistry (5 Credits)
Studies chemical properties of biological compounds: carbohydrates, lipids, amino acids and proteins, and nucleic acids. Metabolism: biochemical energetics, enzymes, electron transport, and oxidative phosphorylation. Integration of metabolism: biochemical genetics, metabolic regulation. Includes laboratory.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204361)

BIO 4410 Human Physiology (5 Credits)
Investigates human physiology from an evolutionary perspective. The study of physiological homeostasis (e.g. cell signaling and tissue dynamics, muscle contraction and development, cardiovascular and respiratory integration) will be contrasted with the same systems under stress (e.g. illness or environmental changes). No credit will be given for students who have taken BIO 2129 or BIO 2130. Includes Laboratory. Typically offered: Autumn.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204410)

BIO 4410L Human Physiology Lab (0 Credit)
Lab Component of BIO 4410.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204410L)

BIO 4413 Animal Physiology (5 Credits)
Investigates the integrative physiology of invertebrate and vertebrate animals. The endocrine, neuromuscular, cardiovascular, respiratory, digestive and urogenital systems will be discussed. Includes laboratory. Typically offered: Winter.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204413)

BIO 4413L Animal Physiology Lab (0 Credit)
Lab Component of BIO 4413.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204413L)

BIO 4415 Plant Physiology (5 Credits)
Considers photosynthesis, material transport, seed germination, growth and development, flowering and fruiting, and hormones of plants. The relationship of structure and function will be emphasized. Includes laboratory. Typically offered: Autumn.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204415)

BIO 4415L Plant Physiology-Lab (0 Credit)
Lab Component of BIO 4415.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204415L)

BIO 4418 Neurobiology (5 Credits)
An introduction to the neurosciences, focusing on fundamental concepts and comparative aspects of nervous-system structure and function. Laboratory makes extensive use of invertebrate models to examine the cellular basis of behavior, including neuronal morphology, electrophysiology, and transmitter chemistry. Includes laboratory.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204418)

BIO 4418L Neurobiology Lab (0 Credit)
Lab Component of BIO 4418.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204418L)

BIO 4419 Medical Virology (5 Credits)
This course provides an overview of replication and pathogenesis of common medically important human viruses, including viral structure, viral genetics, virus-cell interactions, physiological mechanisms of infection and spread, host defenses, viral experimental techniques, viral treatments and prevention, and the epidemiology of various human viruses. Includes laboratory. Typically offered: Winter.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204419)

BIO 4419L Medical Virology Lab (0 Credit)
Lab component of BIO 4419.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204419L)

BIO 4435 Biodiversity: Parasites and Pests (5 Credits)
Explores the biology and classification of medically and economically important organisms, with emphasis on protozoa, parasitic worms, insects, and mites. Provides a survey of parasitic disease, vector biology, and animal pests of livestock and crops. Includes laboratory.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204435)

BIO 4435L Biodiversity: Parasites Pests Lab (0 Credit)
Lab Component of BIO 4435.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204435L)

BIO 4615 Bioethics (3 Credits)
Examines ethical issues in biology and biomedical science that help shape a Christian worldview and value system. This immersive seminar-style course draws on readings in bioethics, health care, history, medical anthropology, philosophy, creation care and science. Students will engage topics through in-depth book and article discussions and presentations, short written responses and a comprehensive research paper. Typically offered: Autumn, Spring.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204615)

BIO 4744 Marine Botany (5 Credits)
Provides a field and laboratory course emphasizing identification, life histories, habitats, and interrelationships of marine plants with emphasis on local flora and Blakely Island. Includes laboratory. Typically Offered: Summer Quarter at Blakely Island Field Station.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204744)

BIO 4810 Marine Ecology (5 Credits)
Considers recent advances in marine ecology. Symbioses, predation, herbivory, and interactions with the physical environment will be emphasized. Laboratory and field work will include the application of ecological techniques to a specific problem and will include the writing of reports describing the results. Typically offered: Summer Quarter at Blakely Island Field Station.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204810)

BIO 4815 Aquatic Ecology (5 Credits)
Introduces students to the biology of freshwater organisms. The physical, chemical, and biological characteristics of flowing and standing water habitats will be studied. The field and laboratory work will focus on lakes, streams, and marshes. Typically offered: Summer Quarter at Blakely Island Field Station.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204815)

BIO 4825 Forest Ecology (5 Credits)
Examines the organisms that comprise the forest ecosystem and their interaction with the physical environment. Emphasis will be placed on field study of forest community composition and the forest as a biologically modified habitat. Typically offered: Summer Quarter at Blakely Island Field Station.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204825)

BIO 4835 Conservation Biology (5 Credits)
Considers values of, threats to, and strategies for conserving biodiversity. Theories of conservation biology will be applied to local biodiversity on Blakely Island. Field exercises will focus on assessing biodiversity of distinct taxa and honing skills for identifying the diversity of plants and animals near the field station. Typically offered: Summer.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204835)

BIO 4840 Chemical Ecology (5 Credits)
Explores the physical, physiological, and ecological bases for chemical communication between organisms. Requires laboratory. Focuses on independent student projects using physiological and behavioral research techniques. Typically offered: Spring.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204840)

BIO 4840L Chemical Ecology Lab (0 Credit)
Lab Component of BIO 4840.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204840L)

BIO 4899 Natural Sciences Seminar (1 Credit)
A capstone experience for seniors that explores current natural sciences topics in an interdisciplinary setting. Seminars addressing current research advances, ethical issues in science, or the intersection of science, vocation, and Christian faith are presented by faculty, students, and guest scholars. Discussion and reflection incorporate appropriate readings. A minimum of two quarters of seminar must be completed during the senior year to fulfill the senior capstone requirement.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204899)

BIO 4900 Independent Study in Biology (1-5 Credit)
Directed readings and/or investigation on special topics.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204900)

BIO 4930 Biology Practicum (1-5 Credit)
Provides opportunity for applied biology. Selected students are assigned teaching, grading, lab preparation, and/or tutoring responsibilities.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204930)

BIO 4940 Internship in Biology (1-5 Credit)
Provides a significant learning experience under faculty supervision in a work-study environment either on or off campus.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204940)

BIO 4950 Special Studies in Biology (1-5 Credit)
Provides selected field-study topics offered at Biology Department's discretion: Hawaiian marine biology; Caribbean marine biology (e.g., Belize); Galapagos Islands natural history; Sonoran Desert biology; Alpine flora; and others.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204950)

BIO 4970 Research Methods in Biology (1-5 Credit)
Provides theoretical foundation and practical experience in specific research methods used in the biological sciences. Each course focuses on a single research methodology, such as scanning or transmission electron microscopy (SEM, TEM), flourescence microscopy, nucleic acid sequencing and others.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204970)

BIO 4978 Biological Research Proposal (1 Credit)
The student will prepare a proposal including a literature review and methods description for a biological research project.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204978)

BIO 4979 Biological Research (1-4 Credit)
The student will conduct research based on a proposal prepared prior to registering for this course. Results of the research will be presented at undergraduate or professional symposia.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204979)

BIO 4982 Advanced Biological Research (1-5 Credit)
The student will conduct research based on a proposal prepared prior to registering for this course. Results of the research will be presented at undergraduate or professional symposia.
Course Schedule (https://catalog.spu.edu/course-search/?keyword=BIO%204982)