BIOLOGY (BIOL)

BIOL 1010 — General Biology LS
Typically Offered: Fall, Spring
Credits: 3
Lecture hours: 3
General Ed Requirement: Life Science
This is a biology course for non-majors. It introduces many major themes in biology, such as inheritance, diversity of life, growth and response of organisms, and flow of matter and energy through biological systems. Special emphasis is given on how this discipline influenced past, present, and future world issues. Students will learn to think critically, interpret data, evaluate information, communicate clearly, about life in the world around them. This class will foster problem solving and the application of scientific thinking in a biological context.

BIOL 1015 — General Biology Lab LB
Typically Offered: Fall, Spring
Credits: 1
Lab hours: 2
General Ed Requirement: Natural Science Lab
The general biology laboratory component allows for student application of biological concepts and skills with an emphasis on investigative learning. This component (BIOL 1015) is optional, but in order to count as a laboratory experience, it must be taken concurrently with BIOL 1010. (Lab fee required)
Corequisites: BIOL 1010

BIOL 1050 — Human Biology LS
Typically Offered: Fall, Spring
Credits: 3
Lecture hours: 3
General Ed Requirement: Life Science
Human Biology is the study of the human species seen through an interdisciplinary lens. In this introductory course, emphasis is placed on the major organ systems, health issues, genetics, and man's interaction with the environment as related to the biology of humans and the quality of life. This course is for students whose primary course of study is not in the sciences. While not required, it is recommended that BIOL 1055 be taken concurrently.

BIOL 1055 — Human Biology Lab LB
Typically Offered: Fall, Spring
Credits: 1
Lab hours: 2
General Ed Requirement: Natural Science Lab
The human biology laboratory component allows for student application of the principles learned in human biology lecture with an emphasis on investigative learning. This component (BIOL 1055) is optional, but in order to count as a laboratory experience, it must be taken concurrently with BIOL 1050.
Corequisites: BIOL 1050

BIOL 1420 — Environmental Biology LS
Typically Offered: Fall, Spring, Summer
Credits: 3
Lecture hours: 3
General Ed Requirement: Life Science
Environmental biology examines the varied dimensions of environmental issues, problems and solutions in the context of the biological sciences. To understand global environmental biology issues, students will become fluent in topics including biodiversity, ecosystem function, agriculture and food production, energy systems, water, urbanization, population dynamics, air quality, and climate. The course consists of lectures, participation exercises, and the application assignments--all of which will require critical thinking and data analysis skills.

BIOL 1425 — Environmental Biology Lab LB
Typically Offered: Fall, Spring, Summer
Credits: 1
Lab hours: 3
General Ed Requirement: Natural Science Lab
The environmental biology laboratory allows students hands-on application and experimentation of principles taught during environmental biology lecture. This component (BIOL 1425) is optional, but in order to count as a laboratory experience, it must be taken concurrently with BIOL 1420. (Lab fee required).
Corequisites: BIOL 1420

BIOL 1450 — Human Dynamics for Visual Artists & Performers LS
Typically Offered: Fall
Credits: 3
Lecture hours: 3
General Ed Requirement: Life Science
Human Dynamics for Visual Artists and Performers is designed primarily for students interested in the human figure and its form and function as it relates to drawing, painting, sculpture, photography, dance, and athletics. The focus of the course is primarily on the musculoskeletal system, but includes the study of the human species at levels of organization from the atomic through the biosphere with the study of cell biology, major organ systems, genetics, human development, reproduction, and evolution.

BIOL 1460 — Birds, Biology, & You LS
Typically Offered: Fall, Spring
Credits: 3
Lecture hours: 3
General Ed Requirement: Life Science
Birds, Biology, and You examines the biology of birds and compares it to human biology. To understand bird biology, students will become fluent in topics including bird classification, how to identify birds by sight, citizen science in the home, bird conservation, and how bird anatomy and physiology compares to that of humans. The course consists of lectures, participation exercises, and application assignments (in-class and field-based) - all of which will require critical thinking and data analysis.

BIOL 1465 — Birds, Biology and You Lab LB
Typically Offered: Fall, Spring
Credits: 1
Lab hours: 1
General Ed Requirement: Natural Science Lab
This course is the laboratory component of BIOL 1460 and gives students the opportunity to study birds in the laboratory and the field.
Corequisites: BIOL 1460

BIOL 1610 — Biology I LS
Typically Offered: Fall, Spring
Credits: 4
Lecture hours: 4
General Ed Requirement: Life Science
This is the first semester course of a year-long sequence that is required for most biology majors, many pre-professional majors, natural resource majors and some agriculture majors. This course introduces many major themes in biology, such as inheritance, diversity of life, growth and response of organisms, and flow of matter and energy through biological systems. This course will foster problem solving and the application of scientific reasoning within a biological context.
Corequisites: BIOL 1615

BIOL 1615 — Biology I Laboratory LB
Typically Offered: Fall, Spring
Credits: 1
Lab hours: 3
General Ed Requirement: Natural Science Lab
The Biology I laboratory component allows for student application of the principles learned in Biology I lecture with an emphasis on investigative learning and collaboration. (Lab fee required)
Corequisites: BIOL 1610

BIOL 1620 — Biology II
Typically Offered: Fall, Spring
Credits: 4
Lecture hours: 4
This course introduces major phyla and classes of algae, plants, and animals through the study of structure/function relationships, reproductive mechanisms, adaptations, and evolutionary development, physiology, ecology, and human importance. This is the second semester course of a year-long sequence that is required for most biology majors, many preprofessional majors, Natural Resource majors, and some Agriculture majors.
Prerequisites: BIOL 1610 and BIOL 1615
Corequisites: BIOL 1625

BIOL 1625 — Biology II Laboratory
Typically Offered: Fall, Spring
Credits: 1
Lab hours: 3
The Biology II laboratory component allows for student application of the principles learned in the Biology II lecture course with an emphasis on investigative learning and collaboration. (Lab fee required)
Prerequisites: BIOL 1610 and BIOL 1615
Corequisites: BIOL 1620

BIOL 1997 — Biological/Health Sciences Internship I
Typically Offered: Fall, Spring, Summer
Credits: 1-3
This course is designed to provide hands-on practical/work experiences in the biological or health sciences. Internships are an opportunity for students to link theory with practice. They are also designed to help students network with professionals, increasing opportunities to receive full-time employment after graduation. Internships can introduce students to multiple professions, helping them narrow down their specific areas of interest early on in their college experience. They are temporary, on-the-job experiences intended to help students identify how their studies in the classroom apply to the workplace. Internships can be paid or volunteer in nature. They can occur with a business, organization, or government agency and are individually arranged by the student in collaboration with a biological sciences faculty member and a supervisor at the workplace. This course is repeatable for up to 6 credits, with no more than 3 credits per semester. Each credit requires 45 clock hours of internship experience. Internships are typically pass/fail credits. Students desiring a grade will need to negotiate a contract with significant academic work beyond the actual work experience.

BIOL 2030 — Introductory Genetics
Typically Offered: Fall
Credits: 4
Lecture hours: 4
This introductory genetics course includes the studies of transmission, population, and quantitative genetics incorporating both molecular and classical aspects of genetic studies. Specific topics include DNA and chromosome structure, regulation of gene expression, mutation, Mendelian genetics, and population genetics. The focus is on applications and current research. This course is required for most biology related majors and recommended for those on a a pre-professional track.
Prerequisites: BIOL 1610 (may be taken concurrently)
Corequisites: BIOL 2035

BIOL 2035 — Introductory Genetics Lab
Typically Offered: Fall
Credits: 1
Lab hours: 2
This laboratory course allows for student experimentation and application of principles learned in the Introductory Genetics lecture course. (Lab fee required.)
Prerequisites: BIOL 1610 (may be taken concurrently)
Corequisites: BIOL 2030

BIOL 2060 — Introductory Microbiology LS
Typically Offered: Fall, Spring
Credits: 3
Lecture hours: 3
General Ed Requirement: Life Science
Introductory Microbiology surveys the fundamental biological processes observed in bacteria and microorganisms with emphasis placed on their beneficial and harmful activities related to humans and other organisms. Molecular genetics and biotechnology are introduced.
Corequisites: BIOL 2065

BIOL 2065 — Intro Microbiology Lab LB
Typically Offered: Fall, Spring
Credits: 1
Lab hours: 2
General Ed Requirement: Natural Science Lab
The laboratory component allows for student application of microbiological principles with an emphasis on investigative learning and collaboration. (Lab fee required)
Corequisites: BIOL 2060

BIOL 2120 — Utah Health Scholars
Typically Offered: Fall, Spring
Credits: 1
Lecture hours: 1
This course is designed to give students preparing for careers in health care (nursing, physical therapy, occupational therapy, dental hygiene, speech pathology, audiology, pharmacy, medicine, etc.) opportunities for service, leadership, and exposure to various careers in health care. It will also provide instruction in making applications, writing personal statements, and interviewing. There will also be discussions based on articles dealing with issues related to health care such as emerging diseases, new treatments, and ethics. Students will be responsible for attendance, article discussions, advising sessions, community service hours, and maintaining a journal of these activities. All activities will be evaluated throughout the semester. All students considering a career in health care are encouraged to enroll. Enrollment may be continued each semester for elective credit. (Additional fee required)

BIOL 2122 — Utah Health Scholars: Critical Analysis and Reading in Healthcare
Typically Offered: Fall, Spring
Credits: 1
Lecture hours: 1
This course is designed to give continued guidance to pre-health profession students involved in the Utah Health Scholars program. Students will be assigned a book relevant to the health care field to read during the semester. Students will be required to provide reflection on the book as well as continue to learn about volunteerism, leadership, job shadowing and patient exposure and its impact on themselves and their future academic goals.
Prerequisites: BIOL 2120

BIOL 2200 — General Microbiology
Typically Offered: Spring
Credits: 3
Lecture hours: 3
This general microbiology course is designed for those with a basic understanding of biology and chemistry. The course will cover the morphology, reproduction, metabolism, microbial and molecular genetics, biotechnology, ecology, and diversity of microorganisms. An emphasis will be placed on bacteria, viruses, fungi, protists, and their role in the environment and human disease.
Prerequisites: (CHEM 1110 or CHEM 1210) and (BIOL 1610 or BIOL 2420)
Corequisites: BIOL 2205

BIOL 2205 — General Microbiology Lab
Typically Offered: Spring
Credits: 2
Lab hours: 4
The laboratory component will involve hands-on experience in microscopy, staining methods, aseptic technique, media preparation, sterilization, maintenance of cultures, microbial identification, molecular biology and enumeration methods. (Lab fee required.)
Prerequisites: (CHEM 1110 or CHEM 1210) and (BIOL 1610 or BIOL 2420)
Corequisites: BIOL 2200

BIOL 2220 — General Ecology for Life Science Majors
Typically Offered: Spring
Credits: 3
Lecture hours: 3
Study of the interrelationships among organisms and their abiotic environments, addressing where and how organisms live. Adaptation, population growth, species interactions, biodiversity, and ecosystem function are explored for a wide variety of organisms and ecosystems.
Prerequisites: BIOL 1610
Corequisites: BIOL 2225

BIOL 2225 — General Ecology for Life Science Majors Lab
Credits: 1
Lab hours: 3
Basic concepts of ecology will be studied in the field. The students will also be introduced to some of the field techniques used by ecologists. The course will require participation in a four-day field trip. Students will also be participating in a service-learning project. This course is designed for life science majors. (Lab fee required to pay for the field trip.)
Corequisites: BIOL 2220

BIOL 2320 — Human Anatomy
Typically Offered: Fall, Spring, Summer
Credits: 3
Lecture hours: 3
This course is a comprehensive study of the structure of the human body. It is designed primarily for students preparing for careers in nursing, physical therapy, and other health care fields. Lecture and lab sections must be the same. For example, if a student enrolls in the 001 course section that student must also enroll in the 001 lab section.
Corequisites: BIOL 2325

BIOL 2325 — Human Anatomy Lab
Typically Offered: Fall, Spring, Summer
Credits: 1
Lab hours: 2
This course is the laboratory component of Human Anatomy (BIOL 2320). It gives students the opportunity to study models, skeletal material, and cadavers.
Corequisites: BIOL 2320

BIOL 2420 — Human Physiology
Typically Offered: Fall, Spring
Credits: 3
Lecture hours: 3
Human physiology is the study of the functions of the human body. A major emphasis is placed on the mechanisms that regulate the functions of individual organ systems. The complex interactions between systems that maintain a constant, dynamic internal environment, which is important for normal cell function, will also be discussed. This class is for students whose major course of study is an allied health profession and for those interested in careers in biology, medicine or dentistry. To be successful in Human Physiology, it is strongly recommended that the following courses have been completed: BIOL 2320 and BIOL 1610 or BIOL 2060 or BIOL 2200 A voluntary supplemental instruction course will be taught each week as a benefit for student learning. Many allied health programs require or award extra points for some of these recommended courses. It is suggested that students verify the specific prerequisites of any programs for which they intend to apply.
Prerequisites: CHEM 1110 or CHEM 1210 or BIOL 1610 or BIOL 2060 or BIOL 2200
Corequisites: BIOL 2425

BIOL 2425 — Human Physiology Lab
Typically Offered: Fall, Spring
Credits: 1
Lab hours: 2
The laboratory portion of human physiology provides hands-on exercises that reinforce the major topics covered in the lecture portion of the course. (Lab fee required)
Corequisites: BIOL 2420

BIOL 2450 — Undergraduate Teaching in Biology
Typically Offered: Fall, Spring
Credits: 2
Lecture hours: 1
Lab hours: 2
Undergraduate Teaching in Biology is offered to students that are interested in acting as teaching assistants in biology laboratories or in assisting in the preparation of cadavers for anatomy laboratories. Students will participate in some, or all, of the following activities: read assignments related to labs taught, review and discuss topics in the discipline, assist in laboratory preparation, and assist in the teaching of biological laboratories. Students in this course must have successfully completed the course that they will be assisting with and must have instructor approval. This course is repeatable for credit.

BIOL 2650 — Pathophysiology
Typically Offered: Spring
Credits: 4
Lecture hours: 4
The study of pathophysiology is the study of the dynamic changes in cell and organ function that occur in injury and disease. This course provides an introduction to the basic concepts of pathophysiology. The focus of this course will be the abnormal functioning of diseased organs as well as gross and microscopic characteristics of diseased tissue. Epidemiology and clinical manifestations are integrated throughout the course. Students will briefly explore normal cell, organ and organ system function and use this as a basis to understand how injury and disease alter normal physiology.
Prerequisites: BIOL 2320 and BIOL 2420 and CHEM 1110

BIOL 2925 — Undergraduate Research
Typically Offered: Fall, Spring
Credits: 2
Lecture hours: 1
Lab hours: 2
This course provides an opportunity for students to apply knowledge and techniques learned in classroom settings to actual research experience. No more than six students will assist one faculty member in that person's research. Students will receive faculty direction for at least one hour a week and lab research participation will usually range from two to four hours weekly. A short summary will be required to be presented to a small, in-lab seminar of interested students and faculty at end of semester. An additional fee is required for consumables.
Prerequisites: BIOL 1610 and BIOL 1615