

BIOLOGY (BIOL)

BIOL 100 - Introductory Biology Laboratory

This laboratory activity course is designed to introduce the non-biology major to science as a process. Basic biological concepts and principles are the focal points for the laboratory activities. The scientific process is used throughout the hands on exercises to facilitate the learning experience.

Credits: 1

Term(s) Typically Offered: Offered Fall & Spring Terms

BIOL 101 - General Biology

A principles course in biology, designed for non-biology majors, which emphasizes cellular structure and function, Mendelian and molecular genetics, reproduction, and classic and modern concepts of ecology and evolution.

Credits: 3

Term(s) Typically Offered: Offered Fall & Spring Terms

BIOL 105 - Environmental Biology

A non-biology majors course which provides an introduction to ecological principles and concepts with an examination of the biological basis of contemporary environmental problems.

Credits: 3

Term(s) Typically Offered: Offered Fall & Spring Terms

Thematic Thread(s): Conservation, Technology & Imagination, Institutions & Human Innovations, Transfer Thread Completion Course, United States in Global Context

BIOL 110 - The Human Body: Fundamentals of Structure and Physiology

This one semester lecture course is designed for non-biology majors and provides a basic introduction to the human body and the fundamental anatomy and physiology of each organ system.

Credits: 3

Thematic Thread(s): Conservation, Technology & Imagination, Human Diversity & Well-Being, Transfer Thread Completion Course

BIOL 113 - Biology I: Foundations of Ecology, Evolution and Diversity with Lab

A laboratory and lecture course that covers the principles of evolution, ecology and organismal diversity to prepare students for subsequent courses required of biology majors. BIOL113 and BIOL114 can be completed in any order.

Credits: 4

Enrollment limited to students with department of Biology.

BIOL 114 - Biology II: Foundations of Molecules, Genes and Cells with Lab

A laboratory and lecture course that emphasizes the foundational biological principles in molecular biology, cellular biology and genetics to prepare students for subsequent courses required of biology majors. BIOL113 and BIOL114 can be completed in any order.

Credits: 4

Enrollment limited to students with department of Biology.

BIOL 120 - Plants and Society

Basic structures, functions, and uses of plants. This course, for the non-biology major, will stress many of the economic and practical aspects of plants. It will also offer historical insights concerning the impact plants have had on world exploration, colonization, etc.

Credits: 3

Term(s) Typically Offered: Offerings Vary

Thematic Thread(s): Transfer Thread Completion Course

BIOL 139 - Foundations of Academic Discovery

Foundations of Academic Discovery serves as the entry point to the Rock Integrated Studies Program. With its strong faculty-student interaction, the course promotes intellectual inquiry, critical and creative thinking, and computer skills needed for academic success. Through varied content, the course introduces students to academic discourse and information literacy while exploring topics such as diversity and inclusion and global awareness. This course will set students along the path to becoming engaged with issues and scholarship important to a 21st century education while they learn about themselves and their place in the world.

Credits: 3

Term(s) Typically Offered: Offered as Needed

Enrollment limited to students with a semester level of Freshman 1 or Freshman 2.

Enrollment limited to students with the ROCK STUDIES 2 STUDENT or ROCK STUDIES STUDENT attributes.

BIOL 190 - Experimental

A unique and specifically focused course within the general purview of a department which intends to offer it on a "one time only" basis and not as a permanent part of the department's curriculum.

Credits: 1-3

Term(s) Typically Offered: Offered as Needed

Enrollment limited to students with department of Biology.

BIOL 195 - Workshop

A workshop is a program which is usually of short duration, narrow in scope, often non-traditional in content and format, and on a timely topic.

Credits: 1-6

Term(s) Typically Offered: Offered as Needed

Enrollment limited to students with department of Biology.

BIOL 198 - Selected Topics

A Selected Topics course is a normal, departmental offering which is directly related to the discipline, but because of its specialized nature, may not be able to be offered on a yearly basis by the department.

Credits: 1-3

Term(s) Typically Offered: Offered as Needed

Enrollment limited to students with department of Biology.

BIOL 201 - General Botany with Lab

Basic biochemical, morphological, and physiological aspects of plant biology as they relate to evolution. Includes a lab.

Prerequisites: (BIOL 101^C and BIOL 100^C) or BIOL 104^C
^C Requires minimum grade of C.

Credits: 4

Term(s) Typically Offered: Offered Fall & Spring Terms

Enrollment limited to students with department of Biology.

BIOL 207 - Land Plants and Their Environment/Lab

This course for non-biology majors surveys the common plants native to Pennsylvania. Includes a lab.

Credits: 3

Term(s) Typically Offered: Offered as Needed

BIOL 208 - Introduction to Wildlife Management/Lab

For non-biology majors, this course covers basic ecological principles with emphasis on the taxonomy and life histories of vertebrate animals. Includes a lab.

Credits: 3

Term(s) Typically Offered: Offered as Needed

BIOL 209 - Human Anatomy and Physiology I

The first of a two-course lecture and laboratory series that surveys the structure and function of the human body. This course will provide an orientation to the human body, as well as an overview of the chemistry, cell biology, and tissue structure needed to understand anatomy and physiology. The course will also cover the integumentary, skeletal, muscular, and nervous systems. It is strongly recommended to take CHEM 104 or CHEM 107 prior to this course.

Credits: 4

BIOL 210 - Medical Microbiology with Lab

The study of pathogenic microorganisms to include taxonomy, structure, biological activities, host defense mechanisms, disease transmission, and disease states. Includes a lab.

Prerequisites: BIOL 110^C or BIOL 114^C or BIOL 209^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Fall & Spring Terms

Enrollment is limited to students with a major in Biology, Biology (Pre MEd) (7-12), Biology, Biology-Prof (Pre MEd)(7-12), Health Science - Public Health, Hlth Sci-P Hlth-Pre PT-SRU 3+3, Hlth Sci-P Hlth-Pre PA-SRU 3+2, Cytotechnology, Histotechnology, Medical Technology or Professional.

BIOL 216 - Anatomy and Physiology I with Lab

The first of two lecture and laboratory courses for non-biology majors which surveys the normal structure and function of the human body. It is recommended that 216 be taken prior to 217. This course includes a lab.

Credits: 3

Term(s) Typically Offered: Offered Every Term

Enrollment is limited to students with a major in Music Therapy, Biology, Biology (Pre MEd) (7-12), Biology, Biology-Prof (Pre MEd)(7-12), Health Science - Public Health, Hlth Sci-P Hlth-Pre PT-SRU 3+3, Therapeutic Recreation Serv, Recreational Therapy, Therapeutic Recreation 3+3 PT, Rec Therapy- Pre PT-SRU 3+3, Rec Therapy-Pre OT-SRU 3+3, Hlth Sci-P Hlth-Pre PA-SRU 3+2, Cytotechnology, Histotechnology, Medical Technology or Professional.

BIOL 217 - Anatomy and Physiology II with Lab

The second of two lecture and laboratory courses for non-biology majors which surveys the normal structure and function of the human body. It is recommended that 216 be taken prior to 217. Includes a lab.

Credits: 3

Term(s) Typically Offered: Offered Every Term

Enrollment is limited to students with a major in Music Therapy, Biology, Biology (Pre MEd) (7-12), Biology, Biology-Prof (Pre MEd) (7-12), Therapeutic Recreation Serv, Recreational Therapy, Therapeutic Recreation 3+3 PT, Rec Therapy- Pre PT-SRU 3+3, Rec Therapy-Pre OT-SRU 3+3, Cytotechnology, Histotechnology, Medical Technology or Professional.

BIOL 250 - Genetics with Lab

An introductory course that covers transmission genetics, molecular genetics, and population genetics, with an emphasis on problem-solving. Examples in both plants and animals (including humans) are considered. Includes a lab.

Prerequisite: BIOL 114^C

^C Requires minimum grade of C.

Credits: 4

Term(s) Typically Offered: Offered Fall & Spring Terms

Enrollment limited to students with department of Chemistry or Biology.

BIOL 290 - Experimental

A unique and specifically focused course within the general purview of a department which intends to offer it on a "one time only" basis and not as a permanent part of the department's curriculum.

Credits: 1-3

Term(s) Typically Offered: Offered as Needed

Enrollment limited to students with department of Biology.

BIOL 295 - Workshop

A workshop is a program which is usually of short duration, narrow in scope, often non-traditional in content and format, and on a timely topic.

Credits: 1-6

Term(s) Typically Offered: Offered as Needed

Enrollment limited to students with department of Biology.

BIOL 298 - Selected Topics

A Selected Topics course is a normal, departmental offering which is directly related to the discipline, but because of its specialized nature, may not be able to be offered on a yearly basis by the department.

Credits: 1-3

Term(s) Typically Offered: Offered as Needed

Enrollment limited to students with department of Biology.

BIOL 300 - Social and Ethical Issues in Genetics

Advances in genetics have the potential to do much good, but they may also create difficult social and ethical issues that we are unprepared for. This course seeks to provide students of all majors with the necessary framework for arriving at their own conclusions about the proper role of genetic technology, for themselves, their families, and society at large.

Credits: 3

Term(s) Typically Offered: Offered Spring Terms

Thematic Thread(s): Citizenship & Social Problems, Conservation, Technology & Imagination, Human Diversity & Well-Being, Institutions & Human Innovations, Transfer Thread Completion Course, United States in Global Context

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

BIOL 301 - Forest Ecology

This course is offered as part of the Pymatuning Laboratory in conjunction with the University of Pittsburgh. For more information, please contact the Biology department, 724-738-2023.

Prerequisites: BIOL 201^C and (BIOL 100^C and BIOL 101^C) or BIOL 104^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Summer Terms

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 302 - Ecology of Amphibians & Reptiles/Lab

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Summer Terms

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 303 - Behavioral Ecology/Lab

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Summer Terms

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 305 - Wetlands and Aquatic Plants/Lab

This course deals with the identification and quantification of phytoplankton and vascular hydrophytes, with emphasis placed on the productivity of aquatic plants and their importance as indicator organisms. Includes a lab.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C and CHEM 108^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Fall Terms Even

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment is limited to students with a program in Biology, Biology (Pre MED) (7-12), Environmental Geoscience, Envir Geosci (Pre MED) (7-12), Biology, Biology-Prof (Pre MED)(7-12), Environmental Geoscience, Cytotechnology, Environmental Science, Environmental Chemistry, Geology, Histotechnology, Medical Technology or Professional.

BIOL 306 - Freshwater Biomonitoring/Lab

This course covers the identification and quantification of fish, zooplankton, and benthos organisms, with emphasis placed on the productivity of aquatic animals and their importance as indicator organisms. Includes a lab.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C and CHEM 108^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Spring Terms Odd

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

BIOL 307 - Vertebrate Ecology/Lab

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered as Needed

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 308 - Aquatic Ecosystem Management / Lab

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered as Needed

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 309 - Human Anatomy and Physiology II

The second of a two-course lecture and laboratory series that surveys the structure and function of the human body. This course covers the blood, endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary and reproductive systems. Additionally, nutrition, metabolism, and energy balance and fluid, electrolyte, and acid-base balance will be covered.

Prerequisite: BIOL 209^C

^C Requires minimum grade of C.

Credits: 4

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

BIOL 310 - Plant Diversity with Lab

A lecture and laboratory course that emphasizes both morphology and molecular data to explain the diversity of botanical organisms throughout the different environments of our world, and to explain how this life has evolved over time. Topics covered will include taxonomic philosophy, the processes of classification, the species concepts, past and present day systematists, data collection and analysis, pollination biology, floristic terminology, origin and evolution of the angiosperms, nomenclature and typification, and additional topics that may enhance course content. Evolutionary trends in floristic morphology will be used to examine family relationships in the angiosperms.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Fall Terms Odd

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 311 - Entomology/Lab

Insects, including their taxonomy, structure, function, ecology, and economic importance.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offerings Vary

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 312 - Zoology with Lab

The anatomy, physiology, ecology, and economic importance of representative animals with emphasis on the understanding of development and the evolutionary blueprint of the animal kingdom. Includes a lab.

Prerequisites: (BIOL 113^C and BIOL 114^C)

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Spring Terms Odd

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 313 - Herpetology/Lab

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered as Needed

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 314 - Parasitology with Lab

This is a lecture and laboratory course for biology majors, which emphasizes the protozoan and metazoan organisms of medical importance. The overall goal for the course is to make students become aware of various aspects of medically important parasites, including their morphology, modes of transmission, mechanisms of host entry and infection, niche selection, life cycles, pathogenesis (associated diseases), diagnosis, treatment, and control of infections.

Prerequisites: BIOL 113^C and BIOL 114^C and BIOL 250^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Fall Terms Odd

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 316 - Immunology with Lab

The is course will discuss the function and regulation of the immune system in detail. Students will gain an appreciation of how the system recognizes pathogens, generates specificity and memory in it's responses and induces physiological changes that help the body fight infection. Students will gain experience with a variety of immunological techniques including but not limited to: blood typing, assessing antigen-antibody interactions, applications of antibody-antigen interactions in medical testing.

Prerequisites: BIOL 113^C and BIOL 114^C and BIOL 250^C and CHEM 201^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Spring Terms

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 317 - Ecology and Fungi

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Summer Terms Even

BIOL 320 - Ornithology/Lab

Anatomy, physiology, taxonomy, ecology, and behavior of birds. Two weekend field trips are required. Includes a lab.

Prerequisites: (BIOL 100^C and BIOL 101^C) or BIOL 104^C and BIOL 212^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Summer Terms

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 321 - Wildlife Management/Lab

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Summer Terms

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 322 - Conservation Biology/Lab

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Summer Terms

Thematic Thread(s): Transfer Thread Completion Course

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 323 - Stream Ecology/Lab

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offerings Vary

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 325 - Biostatistics and Experimental Design with Lab

An introduction to statistical techniques and experimental design as applied to biological problems. Descriptive methods, tests of significance, linear regression, correlation, analysis of variance and covariance, and non-parametric techniques are included. Use of PC and/or mainframe computer is required. Includes a lab.

Prerequisites: (BIOL 113^C or BIOL 114^C) and (MATH 120^C or MATH 125^C or MATH 225^C or minimum score of 60 in 'ALEKS PPL Assessment')
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Spring Terms

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment is limited to students with a major in Geography - Envir Studies Educ, Biology, Biology (Pre MEd) (7-12), Environmental Geoscience, Envir Geosci (Pre MEd) (7-12), Biology, Biology-Prof (Pre MEd)(7-12), Environmental Geoscience, Biology-Logan Chiropractic 3+3, Environmental Science, Geology or Professional.

BIOL 326 - Field Methods in Biogeography/Lab

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Summer Terms

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 327 - Limnology/Lab

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Summer Terms Odd

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 330 - Microbiology/Lab

A consideration of the structure, metabolism, growth, and genetics of microorganisms with emphasis placed on the bacteria and viruses. Includes a lab.

Prerequisites: BIOL 113^C and BIOL 114^C and BIOL 250^C and CHEM 108^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Spring Terms

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Chemistry or Biology.

BIOL 331 - Mammology/Lab

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered as Needed

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 335 - Cell Biology

This is a course for majors in the Biology programs. As such, this course will consider the biology of eukaryotic cells in a detailed fashion. Students should work to understand the vocabulary and concepts associated with the topics covered in the course. Students should be able to recall specific facts from the course material as well as bring together information from multiple lectures in synthesizing answers to problems ranging from simple to complex. Students should complete the course with a firm foundation in the biological processes which make up eukaryotic cells.

Prerequisites: BIOL 114^C and BIOL 250^C and CHEM 201^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Spring Terms

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Chemistry or Biology.

BIOL 340 - Vertebrate Anatomy with Lab

A comparative study of the adult structure of the organs and systems of representative vertebrates. Includes a lab.

Prerequisites: BIOL 113^C and BIOL 114^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Fall Terms

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 343 - Embryology with Lab

Developmental processes of vertebrate embryology. A comparative study of gaetogenesis, fertilization, cleavage, gastrulation, organogenesis, and embronic adaptations. Includes a lab.

Prerequisites: BIOL 113^C and BIOL 114^C and BIOL 250^C and BIOL 340^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Spring Terms Even

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 350 - Evolution

Stresses evolution as a process. Evidence of early theories, population genetics and ecology, modern synthetic theory, speciation, phylogeny, and the major features characteristic of organic evolution are included.

Prerequisites: BIOL 113^C and BIOL 114^C and BIOL 250^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Spring Terms Odd

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 356 - Field Ecology / Lab

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered as Needed

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 357 - Environmental Microbiology with Lab

The interactions of microorganisms with their environment and with other organisms in nutrient cycles and environmental bioremediation, and the effects of microbial activity on plants and animals. Includes a lab.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C and CHEM 108^C

^C Requires minimum grade of C.

Credits: 4

Term(s) Typically Offered: Offered Fall Terms Odd

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment is limited to students with a major in Biology, Biology (Pre MEd) (7-12), Environmental Geoscience, Envir Geosci (Pre MEd) (7-12), Biology, Biology-Prof (Pre MEd)(7-12), Environmental Geoscience, Cytotechnology, Environmental Science, Geology, Histotechnology, Medical Technology or Professional.

BIOL 360 - Field Botany

A field course covering the flora of western Pennsylvania. Students will be expected to identify in the field approximately 225 vascular plants.

Prerequisites: (BIOL 100^C and BIOL 101^C) or BIOL 104^C and BIOL 201^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offerings Vary

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 361 - Flora of Western Pennsylvania

A field class with a lecture component. The primary focus of the class is to enhance student understanding of the taxonomy and ecology of species that compose our flora in western Pennsylvania. Organisms that will be covered include: flowering plants (woody angiosperms and common wildflowers), conifers, ferns & fern allies, bryophytes, lichens, and some representative fungi and macroalgae in our flora. Terminology associated with general plant/fungal/algal structure as well as life cycles of these aforementioned organisms will be described. Students will be introduced to both terrestrial and aquatic ecosystems and the habitats that select species require.

Prerequisites: (BIOL 100^C and BIOL 101^C) or BIOL 104^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offerings Vary

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

BIOL 370 - Molecular Biology

A lecture course that focuses on the structure and function of biological macromolecules and of the functions of living cells at the molecular level. Topics include macromolecular structures, gene expression and regulation, and manipulations of genetic material.

Prerequisites: BIOL 114^C and BIOL 250^C and CHEM 201^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Fall Terms

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Chemistry or Biology.

BIOL 371 - Vertebrate Field Zoology

Taxonomy, life histories, and ecological relationships of representative vertebrates are stressed. Several field trips are required.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered as Needed

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 373 - Ichthyology/Lab

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offerings Vary

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 375 - Ecology of Fish / Lab

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 100^C and BIOL 101^C) or BIOL 104^C and BIOL 212^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offerings Vary

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 380 - Endocrinology

This course will focus on the role of chemical communication in animals, with emphasis on humans. The mechanisms of control and action of hormones will be investigated throughout levels of organization from the molecular to organismal level. The homeostatic role of hormones within and between organ systems will be emphasized in both normal and pathophysiological states (e.g. diabetes, thyroid disorders, reproductive pathologies, and cancer).

Prerequisites: BIOL 113^C and BIOL 114^C and BIOL 250^C and CHEM 108^C
^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Fall Terms Even

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 390 - Experimental

A unique and specifically focused course within the general purview of a department which intends to offer it on a "one time only" basis and not as a permanent part of the department's curriculum.

Credits: 1-3

Term(s) Typically Offered: Offered as Needed

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 395 - Workshop

A workshop is a program which is usually of short duration, narrow in scope, often non-traditional in content and format, and on a timely topic.

Credits: 1-6

Term(s) Typically Offered: Offered as Needed

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 398 - Selected Topics

A Selected Topics course is a normal, departmental offering which is directly related to the discipline, but because of its specialized nature, may not be able to be offered on a yearly basis by the department.

Credits: 1-3

Term(s) Typically Offered: Offered as Needed

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 400 - Disease Ecology

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Summer Terms

BIOL 401 - Ecology with Lab

Emphasis is placed on the structure, composition, and dynamics of ecosystems. Lab work primarily consists of field studies.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C and CHEM 108^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Fall & Summer Terms

Thematic Thread(s): Transfer Thread Completion Course

Students with a semester level of Freshman 1, Freshman 2, Sophomore 1 or Sophomore 2 may **not** enroll.

Enrollment is limited to students with a major in Biology, Biology (Pre MED) (7-12), Environmental Geoscience, Envir Geosci (Pre MED) (7-12), Biology, Biology-Prof (Pre MED)(7-12), Environmental Geoscience, Cytotechnology, Environmental Science, Environmental Chemistry, Geology, Histotechnology, Medical Technology or Professional.

BIOL 402 - Biogeography/Lab

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered as Needed

BIOL 405 - Animal Physiological Ecology with Lab

The adaptations of animals to deal with specialized environmental situations are studied at levels ranging from biochemical to organismal. Includes a lab.

Prerequisites: BIOL 113^C and BIOL 114^C and BIOL 250^C and BIOL 325^C

^C Requires minimum grade of C.

Credits: 4

Term(s) Typically Offered: Offered Spring Terms Odd

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 409 - Pathophysiology

This course will focus on abnormal physiology, providing an in-depth examination of the cellular and molecular origins of disease and disease related processes. The aim of this course is to provide students with an approach for relating microscopic processes to macroscopic disease presentation, diagnostic methods, and treatment options. This course will focus on the Etiology of pathologies, including: infectious, degenerative, neoplastic, metabolic, genetic/congenital, and trauma/environmental. Pathophysiologic underpinnings of common diseases related to the major body systems will be utilized as examples in discussion etiology and disease progression.

Prerequisites: ((BIOL 209^C and BIOL 309^C) or BIOL 410^C) and CHEM 107^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Spring Terms Even

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

BIOL 410 - Animal Physiology with Lab

Basic animal physiological processes, including a synthesis that begins at the molecular level and moves to the more complex cellular and organismal levels. Includes a lab.

Prerequisites: BIOL 113^C and BIOL 114^C and BIOL 250^C and BIOL 325^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Fall Terms

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 411 - Population Biology/Lab

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered as Needed

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 412 - Population Biology

This field course is offered by the University of Pittsburgh to Slippery Rock University students who enroll in the summer program at the Pymatuning Laboratory of Ecology. For more information, please contact the Biology Department, 724-738-2023.

Prerequisites: (BIOL 113^C or EGEO 202^C) and BIOL 114^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered as Needed

BIOL 430 - Pathogenic Microbiology

This course examines the role of bacteria in disease processes with emphasis on host-pathogen interactions and mechanisms by which pathogenic bacteria cause disease. General topics to be discussed include pathogenesis, epidemiology, and characteristics of the major pathogenic bacteria, which allow them to produce a disease state in the host.

Prerequisites: BIOL 113^C and BIOL 114^C and BIOL 250^C and BIOL 330^C and CHEM 108^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Spring Terms Odd

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 435 - Cellular and Molecular Analysis Laboratory

A laboratory course where students will gain hands on training in research techniques related to molecular and cellular biology. Students will complete a hypothesis driven research project that will culminate in a journal style research report.

Prerequisites: (BIOL 113^C and BIOL 114^C and BIOL 250^C and BIOL 325^C and CHEM 201^C) and (BIOL 335 (may be taken concurrently)^C or BIOL 370^{*C}) (may be taken concurrently).

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Spring Terms

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 450 - Biology Internship

This course will permit the biology major to obtain credit for on-the-job experience in such areas as hospitals, greenhouses, nurseries, sewage plants, fish and game commissions, park service, plant breeders, and seed producers, veterinary medicine, etc.

Prerequisites: BIOL 113^C and BIOL 114^C and BIOL 250^C and BIOL 325^C

^C Requires minimum grade of C.

Credits: 1-6

Term(s) Typically Offered: Offered Every Term

Students with a semester level of Freshman 1, Freshman 2, Sophomore 1 or Sophomore 2 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 451 - Plant Physiology/Lab

A lecture-laboratory study of the functional relationships of the plant body including such topics as nutrition, water relations, photosynthesis, photo-periodism, hormones, and growth processes.

Prerequisites: BIOL 113^C and BIOL 114^C and BIOL 250^C and BIOL 325^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Spring Terms Odd

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 470 - Histology with Lab

Microscopic structure and arrangement of tissues in multicellular organisms. Prepared microscopic slides of representative animal organs are studied. Includes a lab.

Prerequisites: BIOL 113^C and BIOL 114^C

^C Requires minimum grade of C.

Credits: 3

Term(s) Typically Offered: Offered Spring Terms Even

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 490 - Independent Study

Students will learn, in a hands-on manner, techniques of scientific inquiry. Independent Study courses give students the opportunity to pursue research and/or studies that are not part of the university's traditional course offerings. Students work one on one or in small groups with faculty guidance and are typically required to submit a final paper or project as determined by the supervising professor.

Prerequisites: BIOL 113^C and BIOL 114^C and BIOL 250^C and BIOL 325^C

^C Requires minimum grade of C.

Credits: 1-3

Term(s) Typically Offered: Offered Every Term

Students with a semester level of Freshman 1, Freshman 2, Sophomore 1 or Sophomore 2 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 492 - Biology Seminar

For junior and senior biology majors. Each semester a different area of current research interest is chosen for study.

Prerequisites: BIOL 113^C and BIOL 114^C and BIOL 250^C and BIOL 325^C

^C Requires minimum grade of C.

Credits: 1

Term(s) Typically Offered: Offered Fall & Spring Terms

Students with a semester level of Freshman 1, Freshman 2, Sophomore 1 or Sophomore 2 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 495 - Workshop

A workshop is a program which is usually of short duration, narrow in scope, often non-traditional in content and format, and on a timely topic.

Credits: 1-6

Term(s) Typically Offered: Offered as Needed

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.

BIOL 498 - Selected Topics

A Selected Topics course is a normal, departmental offering which is directly related to the discipline, but because of its specialized nature, may not be able to be offered on a yearly basis by the department.

Prerequisites: (BIOL 100^C and BIOL 101^C) or BIOL 104^C and BIOL 201^C and BIOL 212^C and BIOL 250^C

^C Requires minimum grade of C.

Credits: 1-3

Term(s) Typically Offered: Offered as Needed

Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

Enrollment limited to students with department of Biology.