

Course Offerings: Biology Majors and Minors

Summer 2025

BIOL 105 – Vanilla Beans and Peppercorns: The Environmental Impact of the Search for Flavor **3 Hour(s) Credit**

Introduces the non-biology major to the broad principles, fundamental ideas and new discoveries in biology that significantly affect the human being's present and future existence. Relates the study of biology to the pressing social and cultural issues of today. **Does not satisfy requirements within the major. Three hours per week. Meets General Education IVB prior to Fall 2024.**

BIOL 112 – Introduction to Animal Behavior **3 Hour(s) Credit**

Designed to expose non-majors to the broad field of animal behavior. Learn the foundational concepts in animal behavior. Some topics include evolution of behavior, communication, learning and cognition, reproductive behavior, and sociality. Use current scientific literature, assigned readings and videos, and journal activities to explore how animal behavior can be tested experimentally. Does not satisfy requirements within the biology major. **Three hours per week. Meets General Education: Solutions Through Science (STS)**

BIOL 211– Microbiology **4 Hour(s) Credit**

Fundamental course in the study of microorganisms and their activity, with emphasis on bacteria. **Two hours lecture, four hours laboratory per week. Meets General Education Prior to Fall 2024: IVB Prerequisites BIOL 101 or BIOL 201 or BIOL 210 or BIOL 215.**

BIOL 215 – Human Anatomy & Physiology I **4 Hour(s) Credit**

Comprehensive study of the structure and function of the human organism, including the integumentary, skeletal, muscle, nervous, and endocrine systems. **Three hours lecture, three hours laboratory per week. Met General Education Prior to Fall 2024: IVA or IVB. Recommended Prerequisites BIOL 101 or BIOL 213**

BIOL 216 – Human Anatomy and Physiology II **4 (Hour(s) Credit**

Comprehensive study of the structure and function of the human organism, including the circulatory, respiratory, digestive, urinary, immune and reproductive systems. **Prerequisite: C or better in BIOL 215. Three hours lecture, three hours laboratory per week. Met General Education IVB prior to Fall 2024.**

BIOL 217 – Nutrition

This course provides a foundation for both majors and non-majors in the science of nutrition, including biological and biochemical backgrounds for the understanding of nutritional requirements. Students will have the opportunity to evaluate and alter their current diet and will participate in assignments that can be applied even after the completion of the class. **The course is three hours per week and is completely online and asynchronous.**

BIOL 375 – Evolution

3 Hour(s) Credit

As the unifying principle of biology, evolution integrates levels of biological organization, with a focus on biological changes over time and the evidence of the shared evolutionary history of all living things. Topics include speciation; extinction; population processes of selection and adaptation, genomics, and the molecular basis of evolution; sexual selection; life history evolution; and the application of evolution to medicine. **Three hours per week. Prerequisites BIOL 202 or BIOL 210**

BIOL 450 – Internship in Biology

1-3 Hour(s) Credit

Experiences in biology-related work provide students with an opportunity to use acquired biological knowledge in a professional way and to investigate potential career options. Under special circumstances, this course may be taken a second time for credit, but only with permission of the internship coordinator. Does not satisfy requirements within the major. **Forty-five student contact hours per credit hour. Prerequisites Junior standing, biology major and approval of Internship Coordinator. (P/F)**

Fall 2025

BIOL 106 – Forensics

3 Hour(s) Credit

Forensics is where the fields of science and law meet, often to solve crimes. Gain a blended lecture and laboratory-based introduction to the study of forensics with an emphasis placed on crime scene processing as well as the evidence that is recovered during these investigations. While focusing on the science used in solving crimes, note that potentially sensitive matters such as violent crimes and death investigations are discussed. **Three hours and 20 minutes per week. Meets General Education: Solutions Through Science (STS)**

BIOL 112 – Introduction to Animal Behavior (7-week course second session)

3 Hour(s) Credit (online)

Designed to expose non-majors to the broad field of animal behavior. Learn the foundational concepts in animal behavior. Some topics include the evolution of behavior, communication, learning and cognition, reproductive behavior, and sociality. Use current scientific literature, assigned readings and videos, and journal activities to explore how animal behavior can be tested experimentally. Does not satisfy requirements within the biology major. **Three hours per week. Meets General Education: Solutions Through Science (STS)**

BIOL 150 – Environmental Science: Concepts and Methods

4 Hour(s) Credit

Explores global and regional environmental processes and systems, as well as the impact of humans on these systems. Addresses current environmental issues such as climate change, habitat loss, and water pollution, emphasizing the role of science in identifying problems and finding solutions. Does not satisfy requirements within the major. **Three hours lecture, two hours lab per week. Meets General Education: Environmental Sustainability (ES), Hands-On Science (HOS). Meets General Education Prior to Fall 2024: IVA or IVB**
Cross-Listed With (May Not Receive Credit for Both) GEOG 150

BIOL 201 – Introduction to Biology: Molecular and Cell Biology

4 Hour(s) Credit

Introduction to biological molecules, cellular anatomy, and cellular function. Build fundamental understanding of molecular core concepts and skills that serve as a foundation for all more advanced coursework in biology. Emphasizes the chemistry of biology, properties of biological molecules, cellular composition, cellular function and diversity, metabolism, and genetics. One of two introductory courses (along with [BIOL 202](#)) required for biology majors. **Three hours lecture, three hours lab per week.**

Meets General Education: Hands-on Science (HOS), Solutions Through Science (STS). Met General Education Prior to Fall 2024: IVA and IVB. Recommended Prerequisites/ Corequisites [MATH 140](#) or equivalent

BIOL 202 – Introduction to Biology: Ecology and Evolution

4 Hour(s) Credit

Includes practice with the core concepts and skills that biologists use to study and preserve life. Explore several facets of biodiversity: its evolutionary origin, its ecological and societal importance, threats from human impacts, and solutions to preserve and restore biodiversity and ecosystem function to enable environmental sustainability. **Three hours lecture, three hours laboratory per week. Meets General Education: Hands-on-Science (HOS), Solutions Through Science (STS), Environmental Sustainability (ES). Met General Education Prior to Fall 2024: IVA and IVB. Recommended Prerequisites/Corequisites [MATH 140](#) or equivalent**

Meets General Education: Hands-on-Science (HOS), Solutions Through Science (STS), Environmental Sustainability (ES). Met General Education Prior to Fall 2024: IVA and IVB. Recommended Prerequisites/Corequisites [MATH 140](#) or equivalent

BIOL 205 – Fundamentals of Human Anatomy and Physiology

4 Hour(s) Credit

Intended for health education and physical education majors, emphasizes the musculoskeletal, nervous, cardiovascular and respiratory systems. **Does not satisfy requirements within the biology major.**

Three hours lecture, three hours laboratory per week. Meets General Education Prior to Fall 2024: IVA or IVB

BIOL 211– Microbiology

4 Hour(s) Credit

Fundamental course in the study of microorganisms and their activity, with emphasis on bacteria. **Two hours lecture, four hours laboratory per week. Meets General Education Prior to Fall 2024: IVB. Prerequisites [BIOL 101](#) or [BIOL 201](#) or [BIOL 210](#) or [BIOL 215](#)**

BIOL 212 – Introduction to Plant Biology

4 Hour(s) Credit

Fundamental course exploring the diversity of plant life from an evolutionary perspective, the unique strategies that enable plants to grow, survive, and reproduce in different environments, and the interactions between plants and other organisms. Designed for biology majors and other science students. **Three hours lecture, three hours laboratory per week. Met General Education Prior to Fall 2024: IVB. Prerequisites [BIOL 201](#) or [BIOL 202](#) or [BIOL 210](#)**

BIOL 213 – Zoology

4 Hour(s) Credit

Study of the biodiversity, structure and functions of animals and animal-like protists with emphasis on their evolutionary relationships. Designed for biology majors and minors and other science majors.

Three hours lecture, three hours laboratory per week. Meets General Education Prior to Fall 2024: IVA or IVB Prerequisites [BIOL 202](#) or [BIOL 210](#)

BIOL 215 – Human Anatomy & Physiology I

4 Hour(s) Credit

Comprehensive study of the structure and function of the human organism, including the integumentary, skeletal, muscle, nervous, and endocrine systems. **Three hours lecture, three hours laboratory per week. Met General Education Prior to Fall 2024: IVA or IVB. Recommended Prerequisites BIOL 101 or BIOL 213**

BIOL 216 – Human Anatomy and Physiology II

4 Hour(s) Credit

Comprehensive study of the structure and function of the human organism, including the circulatory, respiratory, digestive, urinary, immune, and reproductive systems.

Three hours lecture, three hours laboratory per week. Meets General Education Prior to Fall 2024: IVB. Prerequisites C or better in BIOL 215

BIOL 302 - Bioinformatics I

4 Hour(s) Credit

Computer-based course introduces biological databases. Emphasis placed on quantitative approaches to modeling and analyzing biological data. **Three hours lecture, three hours laboratory per week.**

Prerequisites BIOL 201 or BIOL 202 or BIOL 210. Pre or Corequisites MATH 198 or MATH 201

BIOL 303 – Conservation Biology

3 Hour(s) Credit

Study of human-induced threats to species and the ecosystems they depend on, and of the efforts to counteract these threats to protect and restore biological diversity across the globe. **Three hours per week. Prerequisites BIOL 150 or BIOL 202 or BIOL 210 or permission of instructor**

BIOL 310 – Ecology

4 Hour(s) Credit

Introduction to the interactions between organisms and their environment. Biotic and abiotic factors affecting individuals, populations, communities and ecosystems emphasized. **Three hours lecture, three hours laboratory per week. Prerequisites BIOL 202 or BIOL 210**

BIOL 323 - Medical Microbiology

4 Hour(s) Credit

Study of the medically important microorganisms, including methodology and techniques of identification. **Two hours lecture, four hours laboratory per week. Prerequisites BIOL 211**

BIOL 350 – Cell Biology

4 Hour(s) Credit

Focuses on the structure and function of eukaryotic cells. Topics covered include enzyme kinetics, membrane transport, cell signaling, intercellular protein trafficking, cellular respiration, mitosis and meiosis, the cell cycle, and cancer. **Three hours lecture, three hours laboratory per week.**

Prerequisites BIOL 201 or BIOL 210, and CHEM 122

BIOL 360 – Genetic Analysis

4 Hour(s) Credit

Introduction to genetic analysis including Mendelian principles, population and quantitative genetics, cytogenetics and contributions to molecular biology. Satisfies Biology Department core requirements for genetics. **Three hours lecture, three hours laboratory per week. Prerequisites BIOL 201 or BIOL 202 or BIOL 210. Recommended Prerequisites MATH 155**

BIOL 370 – Molecular Genetics

4 Hour(s) Credit

Study of mechanisms of heredity emphasizing organization of the genome, mutation and regulation of gene expression. **Three hours lecture, three hours laboratory per week.**

Prerequisites BIOL 350; **Pre or Corequisites** CHEM 221

BIOL 375 – Evolution

3 Hour(s) Credit

As the unifying principle of biology, evolution integrates levels of biological organization, with a focus on biological changes over time and the evidence of the shared evolutionary history of all living things.

Topics include speciation; extinction; population processes of selection and adaptation, genomics, and the molecular basis of evolution; sexual selection; life history evolution; and the application of evolution to medicine. **Three hours per week. Prerequisites** BIOL 202 or BIOL 210

BIOL 401 - Wetland Ecology

4 Hour(s) Credit

Study of relationships between environmental features and the structure and function of wetland types. Emphasizes hydrology, biogeochemistry and species composition and examines effects of natural and human disturbances on wetland ecosystems. Three hours lecture, three hours laboratory per week.

Prerequisites BIOL 310

BIOL 408 – Neurobiology

4 Hour(s) Credit

Explores the physiological and anatomical underpinnings of the vertebrate nervous system. **Three hours lecture, three hours lab per week. Prerequisites** BIOL 215 or BIOL 350 or CHEM 417 or PSYC 301.

BIOL 413 - Entomology

4 Hour(s) Credit

Study of the natural history, identification, and life cycles of insects. Additional topics covered include insect behavior, forensic entomology, medically important insects, and reproduction. **Three hours of lectures, and three hours of laboratory work per week. Prerequisites** BIOL 213. **May Not Receive Credit for Both BIOL 413 and BIOL 316**

BIOL 415, 416 – Research in Biology

1-3 Hour(s) Credit

Independent student research under the supervision of a faculty member. Schedule to be arranged individually. **Forty-five contact hours per credit hour. Prerequisites: Permission of instructor. May be repeatable and receive credit within the major for up to six credits combined of BIOL 415, BIOL 416, and BIOL 420.**

BIOL 418 - Biology Seminar

1 Hour(s) Credit

Discussions of timely topics in biology and related fields. Includes instruction in seminar preparation and requires student presentations and participation. **One hour per week. Prerequisites Junior standing or permission of instructor.**

BIOL 420 – Readings in Biology

1-3 Hour(s) Credit

Readings designed to permit in-depth study of selected topics. Students submit written reports of their findings at the end of the semester. Specific topics are indicated on students' transcripts. Only three credits may count toward the major. **Prerequisites: Sixteen credits in biology, permission of instructor. May be repeatable and receive up to three credits within the major with a maximum of six credits combined of BIOL 415, BIOL 416, and BIOL 420.**

BIOL 425 - Toxicology

3 Hour(s) Credit

Introduction to basic principles, history and scope of modern environmental toxicology, and to the effects and to the mechanisms of toxicants. Includes applications to risk assessment, regulations and industry. May not be taken for credit if student has credit for ENVH 425. **Three hours per week.** Prerequisites **BIOL 201 or BIOL 210, CHEM 122, junior standing.**

BIOL 450 – Internship in Biology

1-3 Hour(s) Credit

Experiences in biology-related work provide students with an opportunity to use acquired biological knowledge in a professional way and to investigate potential career options. Under special circumstances, this course may be taken a second time for credit, but only with permission of the internship coordinator. Does not satisfy requirements within the major. **Forty-five student contact hours per credit hour. Prerequisites Junior standing, biology major and approval of Internship Coordinator. (P/F)**

BIOL 467 - Stable Isotope Ecology

4 Hour(s) Credit

Introduction to applications of stable isotopes in ecological studies. Topics include isotopic measurements for investigations into terrestrial, aquatic and marine systems, including hands-on data collection and analysis. **Two hours lecture/laboratory per week, two hours online per week** Prerequisites BIOL 310 and CHEM 121, or instructor permission.
