

BIOL # (Sum14+)	old BIOL #	Course	prereqs/ coreqs (Co)	credits	Course description
1100		<b>Nursing Introductory Cell Biology</b>	C1200 or C1500	5	Introduction to basic life processes at the cellular and molecular level, and will introduce you to those aspects of cell structure and function that are common to all living organisms. Four lecture hours and 2 discussion hours per week. <i>Nursing Majors only.</i>
1200		<b>Nursing Anatomy and Physiology I</b>	B1100 or B1610 with $\geq$ C; C1200 or C1500	5	Introduction to major structural and functional systems of the human body: Cells, tissue, bone, muscle, and nervous system. Four lecture hours and 2 discussion hours per week. <i>Nursing Majors only.</i>
1210		<b>Nursing Anatomy and Physiology II</b>	B1200 with $\geq$ C	5	Introduction to major structural and functional systems of the human body. Digestive, circulatory, respiratory, endocrine, urinary, and reproductive systems. Physiological interactions among systems. Four lecture hours and 2 discussion hours per week. <i>Nursing Majors only.</i>
1610+ 1611	161+ 171	<b>Biol I: Intro to Molecular &amp; Cellular Biology + Lab</b>	High School Chem; M1020	4+1	Survey of the biological world, concepts and principles. I) cell biology, metabolism, respiration, photosynthesis, genetics and molecular biology. Four lecture hours + one three-hour lab per week.
1620+ 1621	162+ 172	<b>Biol II: Intro to Evolution, Diversity, Ecology + Lab</b>	B1610+ 1611	4+1	Survey of the biological world, concepts and principles. II) evolution, population genetics, ecology, diversity, and comparisons of groups of living organisms. Four lecture hours + one three-hour lab per week.
1630+ 1631	163+ 173	<b>Biol III: Intro to Animal &amp; Plant Dev't &amp; Physiology + Lab</b>	B1610+ 1611	4+1	Survey of the biological world, concepts and principles. III) development and differentiation; comparative functions of tissues and organ systems, and ecology. Four lecture hours + one three-hour lab per week.
2200	200	<b>Anatomy &amp; Physiology I</b>	B1610+ 1611; C1500+ 1501	5	Major structural and functional systems of the human body. Cells, tissue, bone, muscle, and nervous system. Laboratory emphasis on microscopic and gross anatomy. <i>Credits not applicable to any BS in biology major.</i> Four lecture and three laboratory hours per week.
2210	210	<b>Anatomy &amp; Physiology II</b>	B2200	5	Major structural and functional systems of the human body. Digestive, circulatory, respiratory, endocrine, urinary, and reproductive systems. Physiological interactions among systems. Laboratory emphasis on physiology. <i>Credits not applicable to any BS in biology major.</i> Four lecture and three laboratory hours per week.
2220	220	<b>Microbiology (nursing/allied health)</b>	B2210 <sup>Co</sup>	5	Introduction to microbiology, emphasizing health-related aspects. Four lecture and three laboratory hours per week. <i>Credits not applicable to any BS in biology major.</i>
2350	235	<b>Invertebrate Zoology</b>	B1610-1620 1630	5	Survey of invertebrate phyla including their anatomy, morphology, taxonomy, and ecology. Four lecture and three hours laboratory per week. One weekend field trip.
2520	252	<b>Plant Taxonomy</b>	B1610-1620 1630	5	Native flora as an introduction to taxonomy, involving the principal orders and families of flowering plants. Three lecture and four laboratory hours per week. One weekend field trip is required.

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<b>2600</b>	270	<b>Fundamentals of Ecology</b>	B1610-1620 1630; M1021	5	Explores patterns and processes in nature by studying population, community, and ecosystem dynamics through introducing foundational theories and modeling techniques. Combines lectures with field laboratories at local sites for team research that develops into independent projects. Includes all elements of research, from generating hypotheses to proposing and carrying out research to analyzing and writing up results. Demonstrate proficiency through writing, presenting, and taking exams. Three lecture and four laboratory hours per week.
<b>2700</b>	240	<b>Genetics</b>	B1610-1620 1630	5	Introduction to the principles of inheritance with an emphasis on the transmission of genetic information from one generation to the next. Topics include Mendelian and non Mendelian inheritance, dominance, linkage, gene interactions, sex determination and sex linkage, polygenic inheritance, human medical genetics, maternal effects and molecular biology.
<b>2750+ 2751</b>	285+ 286	<b>Biotechnology + Lab</b>	B1610-1620 1630, B2700 w/ ≥C+; C1520; BioGPA ≥2.8	4+2	Approaches in biotechnology, including recombinant DNA techniques, protein analyses, and computational tools for data analysis. This class is the initial core course for the major in Cell and Molecular Biology.
<b>2910</b>		<b>Bioinformatics</b>	B1610-1620 1630, B2700; C1520	5	The study of how large data sets from biology, molecular biology and protein biochemistry are used to understand how biological processes function. Integration of computer programming and natural sciences is stressed. Three lecture hours combined with computer laboratory per week.
<b>3100</b>	300	<b>Microbiology</b>	B1610-1620 1630; C2500 <sup>Co</sup>	5	Basic biology of microorganisms, including morphology, physiology, genetics, and ecology, with some aspects of applied and medical microbiology. Four lecture and three laboratory hours per week.
<b>3150</b>	315	<b>Virology</b>	B1610-1620 1630; C1520; B2700R	5	General aspects of viruses including structure, genetics and replication. Study will focus on relevant viruses important for understanding lifecycles, human and animal disease and immune system interactions. Broader implications such as vaccine development and gene therapy will be discussed. Four lecture hours and three laboratory hours per week.
<b>3250</b>	325	<b>Comparative Vertebrate Anatomy</b>	B1610-1620 1630	5	Comparative study of the structures of the integumentary, muscular, skeletal, digestive, respiratory, excretory, reproductive, circulatory, and nervous systems of selected vertebrates with emphasis on evolutionary relationships between organisms. Four lecture and three laboratory hours per week.
<b>3300</b>	310	<b>Developmental Biology</b>	B1610-1620 1630	5	Early embryo development with consideration of gametogenesis, fertilization, gastrulation, cell differentiation, and organogenesis. Four lecture and three laboratory hours per week.

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<b>3500</b>	320	<b>Evolution</b>	B1610-1620 1630	5	Course content includes natural and sexual selection, evolutionary genetics, experiments in evolution, evolution and health, macroevolution, and special topics of our choice. The course format includes lectures, student-led presentations and discussions, and original laboratory research. Student presentations explore the scientific literature, debate their conclusions, and provide practice giving effective talks. The laboratories allow students to research, design, conduct, statistically analyze, and write scientific papers on experiments in evolution. Four lecture and three laboratory hours per week.
<b>3650</b>	275	<b>Marine Biology</b>	B1610-1620 1630, B2600; B2350R	5	Study of the marine environment and the animals and plants inhabiting it. Four lecture and three laboratory hours per week and one weekend field trip.
<b>3660</b>	276	<b>Conservation Biology</b>	B1610-1620 1630, B2600	5	Study of critical issues in conservation biology with stresses on urban ecology and human/ecosystem impacts. Independent study lab-based projects will include field work in critical ecosystems.
<b>3760</b>		<b>Protein Project Lab</b>	B1610-1620 1630, B2750 w/ ≥B-; C1520	5	Research-based independent projects that focus on the analysis of proteins. Two lecture and six laboratory hours per week.
<b>3800</b>	380	<b>Animal Behavior</b>	B1610-1620 1630	5	Course goals include gaining a broad understanding and an increased fascination for why animals behave as they do, and the skill to create and answer questions in this field of biology. The course examines how genetics, development, ecology and evolution shape behaviors including communication, choosing mates, avoiding predators, finding food, and social interactions. Four lecture and three laboratory hours per week. One weekend field trip.
<b>3820</b>	335	<b>Neurobiology</b>	B1610-1620 1630; C1520	5	Study of neurochemistry/molecular neuroscience, sensory and motor systems and behavior as it pertains to the human brain. Four lecture hours and three laboratory hours per week.
<b>3850</b>	385	<b>Plant Physiology</b>	B1610-1620 1630; B2700; C2500 <sup>Co</sup>	5	Study of the function of plants, with emphasis on the wide range of physiological process that may contribute to success and survival of plants in their environment. Transport mechanisms; water and mineral management; responses to light, including photosynthesis, photoperiodism, and photomorphogenesis; functions of plant hormones; responses to environmental stresses; events in development. Four lecture and three laboratory hours per week. Individual project.
<b>3880</b>	388	<b>Animal Physiology</b>	B1610-1620 1630; C2510	5	Study of the function of animals, with emphasis on processes that contribute to the success and survival of animals in their respective environments. Nerve and muscle function, hormonal regulation, osmoregulation, digestion, and thermoregulation. Four lecture and three laboratory hours per week.

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3890	389	<b>Environmental Physiology</b>	B1610-1620 1630; C2510	5	Physiological responses of individuals to the environment. Topics covered will include circadian rhythms and responses to various stressors (e.g., light, heat, salinity, climate change, hypoxia).
4100	422	<b>Medical Microbiology</b>	B1630;B222 0 or B3100; C2500	5	Study of clinically significant bacterial and viral pathogens. Characteristics of pathogenic microorganisms and their mechanisms of pathogenesis at the cellular and molecular level will be emphasized. Epidemiological and immunological aspects of microbial diseases will also be considered. Two lectures per week.
4150	415	<b>Immunology</b>	B1630; B2700; C1520; Jr	5	Humoral and cellular immune systems; clonal selection theory; antigen and antibody properties and interactions, immunological diversity; autoimmune diseases; AIDS; cancer immunology; monoclonal antibodies and immunotherapy. Three lecture hours and one discussion per week.
4620	472	<b>Marine Ecology</b>	B1610-1620 1630	5	Advanced, intense field course building on previous ecology, biology, and marine courses focusing on research methods, experimental design, and data analysis in marine ecology. Extensive field work and experimentation in multiple marine habitats, and examination of primary research literature.
4700	440	<b>Molecular Genetics</b>	B1630; B2700w/≥B C2500; Jr	5	Study of heredity at the molecular level, including gene structure, transcription, mutation, DNA replication, recombinant DNA methodologies and their applications. Three lectures per week.
4750+ 4751	455+ 456	<b>Cell Biology + Lab</b>	B1630, B2700; C2500; Jr	4+2	Cellular structure and function from a molecular approach. Topics include: membrane transport, cell division, protein synthesis and secretion, cell communication, the cytoskeleton, and cell motility. Emphasis on experimental approaches and analysis.
4910 FQ		<b>Senior Synthesis I</b>	biology senior	2	Development of an independent research project. Emphasis on career resources, planning, services. Class discussions and oral presentations.
4910 WQ		<b>Senior Synthesis II</b>	biology senior	2	Work with faculty mentor on the development of an independent research project and completion of a written research proposal.
4910 SQ		<b>Senior Synthesis III</b>	biology senior	2	Completion of final written research proposal and oral presentation.
4996	488	<b>Senior Synthesis Seminar</b>	biology senior	1	Each biology senior will give an oral presentation on the project that has been developed throughout senior year. Consideration of relationship between major, Core, and professional goals.

B=Biology; C=Chemistry  
M=Math; R=recommended  
Co=corequisite (or completed)  
Jr= junior standing