BIOL General education courses are marked with stars (∗).

1001 General Biology (3) F,S,Su Credit will not be given for this course and BIOL 1201. For nonscience majors. Not for degree credit for a student majoring in a biological science. General concepts in cell biology, genetics, ecology, and evolution.

1002 General Biology (3) F,S,Su Prereq.: BIOL 1001 or 1201. Credit will not be given for this course and BIOL 1202. For nonscience majors. Not for degree credit for a student majoring in a biological science. Diversity, interactions, and life histories of microorganisms, fungi, plants, and animals.

1005 Introductory Biology Laboratory (2) F,S,Su Prereq.: credit in BIOL 1001 and credit or registration in BIOL 1002; 1 hr. lecture; 3 hrs. lab. Credit not allowed for students who have had BIOL 1208 or 1209. Basic principles of biology including cell biology, genetics, ecology, evolution, diversity, and systems physiology.

1011 Microorganisms and Man (3) Credit will not be given for this course and BIOL 2051. Not open to biological science majors. Microorganisms and their relationship to people; microbial form and function; role of bacteria in health and disease, ecology, and industry from food production to genetic engineering.

1012 Microorganisms and Man Laboratory (1) Prereq.: credit or registration in BIOL 1011. 3 hrs. lab. Credit will not be given for both this course and BIOL 2051. Not open to biological science majors. Basic laboratory skills for handling and observing microorganisms; demonstration of features of microorganisms discussed in BIOL 1011.

1201 Biology for Science Majors I (3) Prereq: minimum ACT composite of 23 or “C” or better in CHEM 1201. Primarily for students in science, agriculture, or education. Credit will not be given for both this course and BIOL 1001. General concepts in cellular structure, cellular metabolism, cellular communication, and genetics.

1202 Biology for Science Majors II (3) Prereq.: BIOL 1201. Primarily for students in science, agriculture, or education. Credit will not be given for this course and BIOL 1002. General concepts in evolution, ecology, and the function of organisms.

1207 HNRS: Biology Laboratory for Science Majors (1) F Prereq.: credit or registration in BIOL 1201 and admission to the Honors College. Credit will not be given for this course and BIOL 1005 or 1208. 3 hrs. lab. Topics include biochemistry, enzymes, cell structures, osmotic, cellular respiration, photosynthesis, cell division, genetics, and ecology.

1208 Biology Laboratory for Science Majors I (1) Prereq.: credit or registration in BIOL 1201. Credit will not be given for this course and BIOL 1005 or 1207. 3 hrs. lab. Primarily for students majoring in science, agriculture, or education.

1209 Biology Laboratory for Science Majors II (1) Prereq: Credit in BIOL 1208, credit or registration in BIOL 1202. Credit will not be given for this course and BIOL 1005. Primarily for students majoring in science, agriculture, or education.

1503 HONORS: Introductory Zoology (4) S Prereq.: BIOL 1201 and consent of instructor. 3 hrs. lecture; 3 hrs. lab. Special honors emphasis for qualified students.

2051 General Microbiology (4) F,S Prereq.: BIOL 1202, 1209 and CHEM 1202. 2 hrs. lecture; 4 hrs. lab. Credit will not be given for both this course and BIOL 1011 or 1012. Structure and function of microbial cells and their relationship to people and the environment.


2084 Elementary Biochemistry Laboratory (1) Prereq.: one semester of chemistry laboratory, CHEM 2060, and credit or registration in BIOL 2083. 3 hrs. lab. Not for degree credit for students in the College of Basic Sciences. Deposit required.

2153 Principles of Genetics (4) F,S Prereq.: BIOL 1202, 1209, and enrollment or credit in CHEM 1202. Fundamental laws of heredity.

2160 Human Physiology (3) F,S,Su May not be taken for credit by a student majoring in a biological science or premedical students. Elements of human physiology; controls and functions of the various organ systems.

2161 Human Physiology Laboratory (1) Prereq.: credit or registration in BIOL 2160 and one year of chemistry. 3 hrs. lab.

2200 Introduction to Research in Biological Sciences (1) Prereq.: 6 sem. hrs. of biological sciences and consent of the instructor. Pass-fail grading. Introduction to research with faculty in the Department of Biological Sciences.

2390 Information Retrieval in the Sciences (1) F,S Prereq.: CHEM 2261 or equivalent. Modern methods of information retrieval from abstracts, scientific research literature, computerized index programs, and key-word citation systems; proper techniques in data presentation.

2500 Natural History of the Vertebrates (4) Prereq.: BIOL 1201, 1208, and 4 hrs. of additional biological sciences with laboratory. 2 hrs. lecture; 6 hrs. lab. field work. Diversity, ecology, and evolution of the fishes, amphibians, reptiles, birds, and mammals; emphasis on Louisiana species.

2510 Introduction to Marine Zoology (4) S Prereq.: BIOL 1202 and 1209; permission of department. 12 hrs. lab. Five weeks at Louisiana Universities’ Marine Consortium (LUMCON). For degrees in biological science this counts only as an approved elective. Field and laboratory survey of marine animals, particularly those of the Louisiana Gulf Coast: classification, morphology, and ecology.

3001 Science Teaching in Secondary School I: The Learner (1) Prereq.: registration in EDCI 3001 or equivalent and credit in either BIOL 2051 or 2153, or CHEM 2001 or 2261, or PHYS 2203 or 2221. Also offered as CHEM 3001 and PHYS 3001. Monitored and evaluated science tutoring experiences in a local middle school or high school under the guidance of the course instructor and a mentoring teacher.

3002 Science Teaching in Secondary School II: Technology in Science Education (1) Prereq.: registration in EDCI 3002 or equivalent and credit in EDCI 3001 and BIOL 3001, or CHEM 3001, or PHYS 3001. Also offered as CHEM 3002 and PHYS 3002. Introduction to the integration of technology in demonstrations, and small and large group classroom activities, with a focus on inquiry-based approaches.

3040 Evolution (3) Prereq.: BIOL 2153. Principles and processes in evolutionary biology.

3041 Evolution Laboratory (1) Prereq.: credit or concurrent enrollment in BIOL 3040. Lab to accompany lecture BIOL 3040.

3060 Introductory Plant Physiology (4) Prereq.: BIOL 1202 and 1209; CHEM 2060, 2261, or 2461. 3 hrs. lecture; 3 hrs. lab. Also offered as PLHL 3060. Life processes of plants emphasizing growth and development, metabolism, transport, and water relations.

3090 Cell Biology (3) Prereq.: BIOL 2153 and CHEM 2262. Molecular description of cell structure and function.

3116 Microbiology Laboratory (3) F,S Prereq.: BIOL 2051. 6 hrs. lab. Laboratory course illustrating experimental microbiology in ecology, taxonomy, physiology, and genetics.

3152 Comparative Anatomy of the Vertebrates (4) F,S Prereq.: BIOL 2153. 2 hrs. lecture; 6 hrs. lab.

3156 Developmental Zoology (4) Prereq.: BIOL 2153. 3 hrs. lecture; 5 hrs. lab. Combination of classical descriptive embryology and contemporary experimental theories focusing on the mechanisms of development in vertebrates and invertebrates.

3900 Undergraduate Seminar in Biological Sciences (1) Prereq.: junior standing and consent of the instructor. Oral presentation of independent laboratory or library research on selected topics in biological science.

3999 Undergraduate Research in Biological Sciences (1-3) F,S,Su May be taken for a max. of 6 sem. hrs. of credit. Individual research on problems in the biological sciences.

4001 Physical Chemistry (3) S Prereq.: CHEM 2261, PHYS 2002, and MATH 1550. Theoretical chemistry; emphasis on solutions, equilibria, and topics of interest to students in agricultural and biological sciences.

4003 Science Teaching in Secondary School III: Instructional Strategies in the Sciences (1) Prereq.: registration in EDCI 4003 or equivalent and credit in EDCI 3002 and BIOL 3002, or CHEM 3002, or PHYS 3002. Also offered as CHEM 4003 and PHYS 4003. Model whole-classroom instructional strategies that depart from the lecture style (cooperative learning or open-ended problem exploration); design and presentation of a science lesson using such a strategy; laboratory safety program
management.

4004 Seminar in Teaching Secondary School Science (3) Prereq.: credit or registration in EDCI 4004 or equivalent, credit or registration in EDCI 4005 or equivalent, and credit in BIOL 4003, or CHEM 4003, or PHYS 4003. Also offered as CHEM 4004 and PHYS 4004

4015 Conservation Biology (3) F-E Prereq.: 11 sem. hrs. of biological sciences; genetics recommended. Also offered as ENTM 4015.

4106 Introduction to Insect Physiology (3) Prereq.: 12 hrs. of entomology or biological sciences; 1 yr. of organic chemistry or biochemistry. 2 hrs. lecture; 3 hrs. lab. Also offered as ENTM 4016.

4107 Taxonomy and Ecology of Wetland Plants (3) 1 hr. lecture; 4 hrs. lab; extended field trips. Also offered as RNR 4020. Field service fee. Taxonomy, ecology, distribution, and economic significance of wetland plants in Louisiana.

4108 Plant Anatomy (4) Prereq.: BIOL 1202 and 1209. 2 hrs. lecture; 4 hrs. lab. Structure and development of vascular plants; emphasis on seed plants.

4132 Eukaryotic Molecular Genetics (3) Prereq.: BIOL 2153; BIOL 4094 recommended. Principles of biochemistry; biochemistry of the genetic code; protein chemistry; enzymology; primary, secondary, and tertiary metabolites; energetics; cycles of intermediary metabolism; biosynthesis and biodegradation; chemical structure of amino acids, carbohydrates, lipids, and nucleic acids.

4142 Ornithology (4) S Prereq.: BIOL 2153 and CHEM 2262. Physiology of animal parasites; emphasis on important human parasites.

4149 Aquatic Invertebrate Ecology (4) Prereq.: BIOL 1202 and 1209. 2 hrs. lecture; 4 hrs. lab. Field service fee. Phylogenetic survey of plant form and development among vascular plants from ferns and related forms through gymnosperms and angiosperms.

4150 Plant Taxonomy (4) Prereq.: BIOL 1202 and 1209. 2 hrs. lecture; 4 hrs. lab. Principles of identification, classification, and nomenclature; their application to select groups of vascular plants.

4151 Biology of Eukaryotic Microorganisms (4) Prereq.: BIOL 1202 and 1209. 2 hrs. lecture; 4 hrs. lab. Microbes used in industrial processes such as production of chemicals, antibiotics, and vitamins.

4162 Food Microbiology (4) See FDSC 4162.

4163 Industrial Microbiology (4) Prereq.: BIOL 4110; or equivalent. 2 hrs. lecture; 4 hrs. lab. Microbes used in industrial processes such as production of chemicals, antibiotics, and vitamins.

4177 Neurobiology (3) Prereq.: BIOL 2153 and CHEM 2262. Principles of organization and function in nervous systems; molecular basis of behavior.

4190 Introductory Virology (3) V Prereq.: BIOL 2051. Viruses and their host cells; biochemistry and molecular biology of viral infections.
4194 History of Biology (2) Prereq.: senior standing or consent of instructor.
4200 Microbial Morphogenesis (3) Prereq.: BIOL 2051 and 2153. Cellular morphogenesis in microorganisms and its control by differential gene expression; physiological changes during microbial differentiation; adaptive roles and practical applications.
4210 Biological Modeling and Data Analysis (3) Prereq.: MATH 1550, 8 sem. hrs. of introductory biology, 2 hrs. lecture; 2 hrs. lab. Modeling of biological systems; design and analysis of biological experiments; presentation of data.
4246 Microbial Genetics (3) Prereq.: BIOL 2051 and 2153. Microbial genetic principles: mutation, conjugation, transformation, recombination, transduction, gene expression; molecular biology of bacteriophage and plasmids; recombinant DNA technology.
4253 Principles of Ecology (3) F, S Prereq.: 8 sem. hrs. introductory biological sciences with lab. Fundamental ecological principles governing the structure and function of populations, communities, and ecosystems; comparative habitat ecology.
4254 Principles of Ecology Laboratory (1) F, S Prereq.: credit or registration in BIOL 4253. 3 hrs. lab. Field service fee. Laboratory exercises in ecology.
4256 Microbial Ecology and Nutrient Cycling in Soils (4) See AGROEMS 4056.
4261 Microbiology of Water, Sewage, and Industrial Wastes (4) Prereq.: BIOL 4110. 2 hrs. lecture; 4 hrs. lab.
4262 Marine Communities (3) Prereq.: BIOL 2153. Marine biology; ecology of benthic, planktonic, nektonic, estuarine, oceanic, coral, and mangrove communities; emphasis on Louisiana's coastal environments.
4263 Marine Communities Laboratory (1) Prereq.: credit or concurrent enrollment in BIOL 4262 or equivalent. 3 hrs. lab. Field service fee. Laboratory experiences in marine communities.
4270 Animal Behavior (4) S Prereq.: BIOL 2153. 3 hrs. lecture; 3 hrs. lab. Students are responsible for personal expenses associated with mandatory field trips. Introduction to the field of animal behavior with emphasis on how research in this area is performed; topics include physical, environmental, and physiological effects on behavior as well as possible evolutionary causes of present-day behaviors.
4299 Genetics of the Evolutionary Process (4) Prereq.: BIOL 2153 or equivalent. 3 hrs. lecture; 3 hrs. discussion/lab. Principles of microevolution; emphasis on genetic and ecological mechanisms relevant to process of evolution.
4308 Plants in Coastal Environments (3) See OCS 4308.
4385 Biochemistry Laboratory (3) F, S Prereq.: credit or registration in BIOL 4087 or 4093. 1 hr. lecture; 6 hrs. lab. Techniques including chemistry of amino acids and proteins; purification, immunochemistry, kinetics of enzymes; protein biosynthesis; nucleic acid chemistry; properties and restriction mapping of plasmids and recombinant DNA; spectrophotometry, chromatography; electrophoresis, centrifugation, and radiolabeling.
4400 Molecular Genetics Laboratory (3) S Prereq.: BIOL 2153 and 6 hrs. of biological sciences at the 4000 level or BIOL 4246 and 3 hrs. of biological sciences at the 4000 level. 1 hr. lecture; 4 hrs. lab. Current techniques used to genetically engineer microorganisms, study gene expression and DNA modification, and identify organisms by specific genetic alleles; computer analysis of DNA and protein sequences.
4444 Seed Physiology (3) S See PLHL 4444.
4500 Molecular Regulation of Cell Function (3) F Prereq.: BIOL 1201, 4094, CHEM 2262. BIOL 3090 encouraged. Molecular organization of eukaryotic cells; gene structure and function; molecular regulation of signal transduction and cell cycle.
4595 Physical Chemistry of Macromolecules (3) See CHEM 4595.
4596 Biophysics of Macromolecules (3) Prereq.: BIOL 4087 and 4093 and BIOL 4001 or credit or registration in CHEM 3492. Complements material in BIOL 4595. Theory and application of physical techniques to the study of biological macromolecules; spectroscopy (UV-VIS absorption and fluorescence, circular dichroism, IR, NMR, X-ray diffraction); helix-coil theory; theories of ligand binding.
4600 Topics in Marine Zoology (2-6) Su Prereq.: 16 hrs. of biology or zoology including one laboratory course numbered above 3000. See also RNR 4600. May be taken for a max. of 9 sem. hrs. of credit when topics vary. Courses to be offered vary from year to year; additional information available from department. Intensive field study of a special topic in marine zoology at the Louisiana Universities' Marine Consortium field stations.
4653 Marine Phyology (4) Su Prereq.: 12 hrs. in biological science, including some plant biology. Four weeks at Gulf Coast Research Laboratory, Ocean Springs, Mississippi.
4800 Selected Topics in Biological Sciences (2-4) Prereq.: 16 sem. hrs. of biological sciences and permission of department. May be taken for a max. of 6 sem. hrs. of credit when topics vary.
6055 Flora of Louisiana for Teachers (4) Prereq.: one year of biological sciences. 2 hrs. lecture; 4 hrs. lab. Student projects are required. Identification and natural history of native vegetation and plant communities of Louisiana.
6147 Selected Topics in Life Science (1-3) Prereq.: BIOL 1001, 1002, 1005; or equivalent. May be taken for a max. of 6 sem. hrs. credit when topics vary. Specific areas of biological sciences; topics offered determined by recent advances in the field, needs of students, and availability of appropriate faculty.
7001 Tropical Ecology (3) Prereq.: BIOL 4253 or equivalent. Ecology, natural history, and biodiversity of tropical organisms, communities, and ecosystems, including plants, fungi, insects, reptiles, amphibians, birds, mammals, and fishes of tropical rain forests and tropical savannas.
7010 Plant Molecular Biology (5) F Prereq.: BIOL 3060, 4093, and 4094 or equivalent. See PLHL 7010.
7013 Coevolution (3) See ENTM 7013.
7014 Plant Stress Physiology (3) See PLHL 7014.
7022 Marine Microbial Ecology (3) See OCS 7020.
7025 Advanced Plant Anatomy (3) Prereq.: BIOL 4024 or equivalent. Analysis of meristic activity and growth patterns in vascular plants; basis and mechanisms of differentiation and experimental studies of normal growth processes.
7032 Advanced Mycology: Ascomycetes and Deuteromycetes (4) See PLHL 7032.
7043 Advanced Plant Taxonomy (4) Prereq.: BIOL 2153 or AGRI 2072, and BIOL 4041 or equivalent. 3 hrs. lecture; 3 hrs. lab. Fundamentals of natural variation and evolution; taxonomic features of plant variation.
7044 Agrostology (3) Prereq.: BIOL 4041 or equivalent. 1 hr. lecture; 4 hrs. lab. Morphology, classification, identification, and economic importance of grasses and grasslike plants.
7056 Advanced Mycology: Lower Fungi (4) Prereq.: BIOL 4054 or equivalent. 3 hrs. lecture; 3 hrs. lab. Same as PLHL 7056. Taxonomy, biology, and ecology of flagellated fungi and zygomycetes, ultrastructural morphology, genetics, and pathogenicity; collection, isolation, and identification of fungi from a variety of substrates and habitats.
7061 Plant Growth and Development (3) See PLHL 7061.
7063 Plant Metabolism (3) See PLHL 7063.
7065 Transport Processes in Plants (3) Prereq.: BIOL 3060. Also offered as PLHL 7065. Principles governing the transport of water, mineral nutrients, organic compounds and gases in plants; cellular through whole-plant levels of organization and physiological response.
7067 Selected Topics in Plant Physiology (2) Prereq.: consent of instructor. May be repeated for credit. Same as PLHL 7067. Mineral nutrition, metabolism, growth and development, and herbicides.
7068 Current Literature in Plant Physiology (1) See PLHL 7068.
7080 Population Ecology (3) Prereq.: BIOL 4253 or equivalent. Also offered as ENTM 7080. Advanced topics emphasizing animals in population growth and regulation; life histories; foraging behavior; agonism and territoriality; and group behavior.
7083 Community Ecology (3) Prereq.: BIOL 4253 or equivalent. Ecological processes of communities; predation, competition, mutualism, disturbance, succession, island biogeography, and diversity.
7093 Plant Population Biology (3) Prereq.: BIOL 4253 or equivalent. Plant population dynamics, reproductive systems, life histories, competition, niche theory, and interactions between plants and predators, pathogens, and symbionts.
7111 Systematic Biology (4) Prereq.: 8 sem. hrs. of 4000-level biological science courses or equivalent; introductory statistics recommended. 3 hrs. lecture; 2 hrs.
7118 Ethology (4) Prereq.: consent of instructor. 2 hrs. lecture; 6 hrs. lab. and field work. Evolutionary basis of animal behavior.

7120 Marine Ecology (3) Prereq.: consent of instructor. 2 hrs. lecture; 3 hrs. lab. and field work. Also offered as CBS 7317. Physical, chemical, and biological environmental factors affecting distribution of marine fauna; communities representative of each of the ecological subdivisions of the world's oceans treated with respect to species composition, food webs, and seasonal changes; human impact on the marine environment.

7125 Invertebrate-Microbial Interactions in Aquatic Environments (3) Prereq.: consent of instructor. 2 hrs. lecture; 3 hrs. lab. Invertebrate-microbial interactions in aquatic food webs; ecological significance of mutualistic, parasitic, and commensal relationships.

7130 Environmental Physiology of Estuarine Animals (4) Prereq.: consent of instructor. 3 hrs. lecture; 3 hrs. lab. Effects of salinity, temperature, and dissolved oxygen on the physiology of estuarine fauna.

7148 Microbial Anatomy and Ultrastructure (2) Y Prereq.: BIOL 4110 or equivalent. Structure of various microbial forms.

7152 Advanced Vertebrate Anatomy (4) Prereq.: BIOL 3152. 2 hrs. lecture; 6 hrs. lab.

7153 Mutagenesis (3) Prereq.: BIOL 2153 and consent of instructor. Mechanism of mutation; methods of detecting mutations; comparisons of effect of mutagenic agents among various test organisms.

7154 Advanced Genetics Laboratory (3) Prereq.: consent of instructor. 1 hr. lecture; 6 hrs. lab. Experiments with Drosophila melanogaster; study of genetic and cytological variations due to deficiencies, duplications, inversions, rings, translocations, transpositions, compound chromosomes, and Y derivatives; classical genetic loci and loci controlling electrophoretic mobility of enzymes and other proteins used; stocks synthesized to meet specific requirements for mutational and biochemical research.

7155 Energy Transducing Membrane Proteins (3) Prereq.: BIOL 4110 and 4087 or 4093, or equivalent. Structure and function of energy transducing membrane proteins including bacteriorhodopsin, ATP synthase, cytochrome oxidase, cytochrome b/c, complexes, the bacterial reaction center, photosystem I and II and antennae pigment protein complexes.

7156 Experimental Embryology (4) Prereq.: BIOL 3156 or equivalent. 2 hrs. lecture; 6 hrs. lab. Field service fee. Classic and contemporary theory, techniques, experiments, and independent investigations concerning vertebrate and invertebrate development.

7157 Molecular Adaptation to the Environment (4) Prereq.: consent of instructor. 3 hrs. lecture; 3 hrs. lab. Molecular and physiological mechanisms adapting organisms to environmental factors; emphasis on adaptations permitting organisms to inhabit a diversity of environments.

7160 Histochemistry and Cytochemistry (4) Prereq.: 3 sem. hrs. of biochemistry or equivalent. 2 hrs. lecture; 6 hrs. lab.

7161 Higher Bacteria (3) V Prereq.: BIOL 4110 or equivalent. Microbial systematics and ecology; emphasis on morphology and physiology of the higher bacteria.

7162 Molecular Biology of Microorganisms (3) Prereq.: BIOL 4246, and either BIOL 4110 or 4094; or equivalent. Synthesis, activity, and interactions of various molecular components of microbial cells; macromolecules and their relationship to cellular function and heredity.

7163 Advanced Technology of Molecular Biology 1 (3) V Prereq.: credit or registration in BIOL 7280 or BIOL 7162. 1 hr. lecture; 6 hrs. lab. Methods in recombinant DNA procedures; isolation of DNA from prokaryotic or eukaryotic sources; DNA cloning; restriction mapping and DNA sequencing.

7164 Advanced Technology of Molecular Biology II (3) V Prereq.: credit or equivalent in BIOL 7163. 1 hr. lecture; 6 hrs. lab. Special projects in experimental molecular biology.

7171 Physiological Rhythms (3) Prereq.: consent of instructor. 1 hr. lecture; 4 hrs. lab. Role of exogenous and endogenous rhythms in regulation of physiological systems.

7177 Neurosensory Physiology (4) Prereq.: BIOL 4155 or 4157 or 4160. 2 hrs. lecture; 6 hrs. lab. Physiology of nerve and sensory receptors; vertebrate systems and independent laboratory investigation.

7220 Biochemistry and Toxicology of Metals (3) S Prereq.: BIOL 4093, 4094; CHEM 2262. See ENVS 7220.

7253 Molecular Population Genetics (4) Prereq.: BIOL 2153 or equivalent. 3 hrs. lecture; 3 hrs. discussion/lab. Molecular genetic variation in natural populations; effects of selection, inbreeding, random drift, migration, and mutation on DNA and protein polymorphisms; emphasis in lab on computer-assisted manipulation and analysis of molecular data.

7250 Organelle Genetics (3) Prereq.: BIOL 4094 and BIOL 2153; or equivalent. Organelle biogenesis, structure and packaging of organelle genomes, segregation and transmission patterns of organelle genes, mapping, and molecular mechanisms of transmission.

7280 Nucleic Acids (3) V Prereq.: BIOL 4094 or equivalent. Chemistry and biochemistry of nucleic acids; structure, expression, and regulation of genes in prokaryotic and eukaryotic organisms.

7284 Proteins (3) V Prereq.: CHEM 4491 or BIOL 4001; and BIOL 4093 or equivalent. Conformations of fibrous and globular proteins; their interactions with small and large molecules.

7285 Advanced Enzymology (3) V Prereq.: one semester of physical chemistry and credit or registration in BIOL 4094. Principles involving action of enzymes on a molecular level; includes kinetics, inhibition, Ph effects, active site, coenzymes, reaction mechanism, and protein structure of enzymes.

7286 Seminar (1) F,S May be repeated for a max. of 6 sem. hrs. of credit. Reports on topics of current interest in biological sciences.

7288 Lipids and Membranes (3) V Prereq.: BIOL 4094. Chemistry and biochemistry of lipids and membranes; analytical methods for lipids; biosynthesis of complex lipids; organization and function of biological membranes.

7289 Biochemistry of Viruses (3) V Prereq.: BIOL 4094 or equivalent. Also offered as CBS 7410. Biochemistry and molecular biology of representative bacterial, animal, and plant viruses; virus attachment to and penetration of host cells; replication, transcription, and translation of viral genes; virion morphogenesis and assembly; virus-induced host cell modifications; emphasis on structure-function relationships.

7290 Complex Carbohydrates (3) V Prereq.: BIOL 4094. Chemistry of carbohydrates including stereochemistry, reactions, derivatization, and analysis; biosynthesis and functions of complex carbohydrates; structure and function of complex carbohydrates including polysaccharides, glycoproteins, and glycolipids; immunology and receptorology.

7622 Fundamentals of Carcinogenesis (3) S-E Prereq.: CBS 7603 or consent of instructor. Same as CBS 7622 and ENVS 7622.

7624 Toxicology II (3) See CBS 7624.

7626 Toxicology IV: Genetic Toxicology (3) S-E. See ENVS 7626.

7648 Museum Field Expedition (6) Prereq.: consent of instructor. One semester in the field under direction of the Museum of Natural Science staff.

7699 Toxicology Seminar (1) See CBS 7699.

7800 Special Topics in Biological Sciences (2-4) Prereq.: consent of instructor. May be taken for a max. of 12 sem. hrs. when topics vary. Specialized topics of current interest in the biological sciences.

7901 Departmental Seminar in Biological Sciences (1) May be repeated for a max. of 6 sem. hrs. of credit. Reports on specialized subjects of current interest in the biological sciences.

7902 Departmental Seminar in Biochemistry (1) May be repeated for a max. of 6 sem. hrs. of credit. Reports on specialized subjects of current interest in biochemistry.

7921 Research Presentations in the Biological Sciences (1) May be repeated for credit. Pass/fail grading. Presentations of individual research projects in the biological sciences.

7946 Seminar: Current Topics in Molecular Evolution (1) Prereq.: course in evolution, genetics, BIOL 4087 or equivalent. Also offered as ENTM 7946. May be taken for max. of 6 hrs. credit when topics vary.

7978 Tropical Agricultural Ecology (1-8) Intensive eight-week field course in Costa Rica conducted by the Organization for Tropical Studies; includes visits to various research sites to study the application of ecological principles to tropical agriculture.
7979 Tropical Biology: An Ecological Approach (1-8) Eight-week field course at research sites in Costa Rica; conducted by Organization for Tropical Studies; also offered as ENTM 7979. Complexities of tropical plants and animals and their interactions.

7990 Independent Research in Biological Sciences (2-8) Prereq.: consent of instructor. May be repeated for a max. of 9 sem. hrs. credit. Directed research under the guidance of a graduate faculty member.

7995 Independent Readings in Biological Sciences (1-3) Prereq.: consent of instructor. May be taken for a max. of 9 sem. hrs. of credit. Directed individual readings under the guidance of a graduate faculty member.

8000 Thesis Research (1-12 per sem.) “S”/”U” grading.

8903 Microbiology for Teachers (4) Su 2 hrs. lecture; 4 hrs. lab. Relation of microorganisms to everyday living; how knowledge of these forms is used in effective teaching of high school science and home economics.

8904 Methods of Research in Microbiology (3) 1 hr. conference; 6 hrs. lab. May be taken for a max. of 6 hrs. of credit when topics vary. Pass-fail grading.

8910 Research Participation (3) Su For high school science teachers.

9000 Dissertation Research (1-12 per sem.) “S”/”U” grading.