

- 4780. PRINTMAKING IV.** (3-1-5). Advanced personal experimentation with mixed media appropriate to individual pursuits. Refinement of technical competence and proficiency. Majors and minors must earn a “C” or better to pass this course. Prerequisite: 4480.
- 4810. NEW MEDIA DESIGN IV.** (3-1-4). Advanced types, applications and outcomes. The utilization of multiple media technologies in the development of web, interactive and experimental projects. Experimentation with video, motion graphics, and 3-D communications design and development of a digital portfolio. Majors and minors must earn a “C” or better to pass this course.
- 4890. ADVERTISING AND COMMERCIAL PHOTOGRAPHY.** (3-3-0). Students will learn how to create professional commercial photographs by learning skills, methods and lighting techniques. In this class students will make a professional commercial image of both products and people. Students will learn how to edit images and create a final set of commercial imagery that is professionally made and indistinguishable from actual advertisements. Majors and minors must earn a “C” or better to pass this course. Prerequisites: ART 4490 or consent of instructor.
- 4960. GRAPHIC COMMUNICATION V.** (3-1-5). Advertising Design. Setting objectives. Defining target audience. Planning an advertising strategy. Creating an advertising message. Producing an ad. Placing the ad in a mock-up. Software: Photoshop, Illustrator, and InDesign, After Effects, XD. Majors and minors must earn a “C” or better to pass this course. Prerequisite: ART 4560 or consent of instructor.
- 4980. PROFESSIONAL PRACTICE.** (3-3-0). This course prepares students for the work force or helps them to have all necessary materials to apply for job. Includes job search. Online portfolio development through Behance, and interviewing skills. Majors and minors must earn a “C” or better to pass this course.
- 4990. SENIOR EXHIBITION/SENIOR DESIGN PROJECT.** (3-1-3). FOR GRAPHIC COMMUNICATIONS OR INTERDISCIPLINARY DESIGN CONCENTRATION: the senior project is a compilation of projects that focus fundamentally on advertising design. Students must produce a whole project: Brand, Visual Identity, Editorial, animated elements, 3D models, and advertising. Projects can have some variation and may focus on different areas depending on the complexity and direction of the project. FOR STUDIO ART OR CRAFTS CONCENTRATION: The Senior Exhibition course focuses on the completion and display of an individual, cohesive body of work by graduating Senior students as well as preparation of a portfolio that reflects the exhibition. All ART Majors must take 4990 their senior year to satisfy graduation requirements. Prerequisite: 4980 and senior standing. Majors and minors must earn a “C” or better to pass this course.
- ¹ Minimum grade of “C” required of art majors.
² If six hours are to be taken during one semester, they must be divided between two areas of study. May be repeated for a maximum of nine semester hours.
- For Graduates Only
- 5010. ADVANCED PROBLEMS IN PAINTING.** (3-1-5). Contemporary trends; research and laboratory practice in painting problems. Prerequisite: Consent of instructor. May be repeated for a total of six hours credit when topic varies.
- 5020. ADVANCED PROBLEMS IN DRAWING.** (3-1-5). Contemporary trends; research and laboratory practice in drawing problems. Prerequisite: Consent of instructor. May be repeated for a total of six hours credit when topic varies.
- 5080. ADVANCED PROBLEMS IN DESIGN.** (3-1-5). Work in design-related subjects. Prerequisite: Consent of instructor. May be repeated for a total of six hours credit when topic varies.
- 5090. ADVANCED PROBLEMS IN PHOTOGRAPHY.** (3-1-5). Student selects an area of photography to be investigated in depth. May include new technical applications and equipment, creative theme development in black and white, color, filmmaking, or a combination of any of these. Student must present a paper or creative project at the end of the course. May be repeated for a total of six hours credit when topic varies.
- 5110. ADVANCED PROBLEMS IN CRAFTS.** (3-1-5) Advanced experience in the design and construction of various craft projects. Prerequisite: Consent of instructor. May be repeated for a total of twelve hours credit when topic varies. Subtitles: 01 - Stained Glass, 02 - Musical Instrument Construction, 03 - Exhibition Techniques, 04 - Mixed Media.
- 5130. ADVANCED PROBLEMS IN SCULPTURE.** (3-1-5). Exploration in a specialized direction of personal significance. Prerequisite: Consent of the instructor. May be repeated for a total of six hours credit when topic varies.
- 5140. EXPERIMENTAL STUDIO.** (3-1-5). Work with a member of the faculty in new and experimental studio problems. Prerequisite: Consent of the instructor. May be repeated for a total of six hours credit when topic varies.
- 5220. ADVANCED GRAPHICS.** (3-1-5). Exploration in a specialized direction of personal significance. Prerequisite: Consent of the instructor. May be repeated for a total of six hours credit when topic varies.
- 5240. GRADUATE STUDIO.** (3 to 6-1-5). Advanced studio problems. Students must meet with instructor to approve specific problem in writing prior to registration. Prerequisite: Consent of instructor. May be repeated for a total of fifteen hours credit when topic varies. Subtitles: 01 - Painting, 02 - Drawing, 03 - Sculpture, 04 - Design, 05 - Ceramics, 06 - Advertising Art, 07 - Watercolor, 08 - Stained Glass, 09 - Photography, 10 - Graphics.
- 5420. ADVANCED PROBLEMS IN WATERCOLOR.** (3-1-5). Further experimentation with watercolor as a medium. Prerequisite: Consent of the instructor. May be repeated for a total of six hours credit when topic varies.
- 5440. ADVANCED PROBLEMS IN CERAMICS.** (3-1-5). Clays, glazes, computation, and measurements. Prerequisite: Consent of the instructor. May be repeated for a total of six hours credit when topic varies.
- 5450. ADVANCED PROBLEMS IN COMMERCIAL ART.** (3-1-5). Planning and execution of a complete design project such as a web-site design, multimedia design, computer graphics, illustration of sequential art. Prerequisite: Consent of the instructor. May be repeated for a total of six hours credit when topic varies.
- 5460. RESEARCH IN ART HISTORY.** (3 to 6-6-0). Research in art history. Prerequisite: Consent of instructor.
- 5700. ADVANCED PROBLEMS IN NEW MEDIA DESIGN.** (3-1-4). Advanced problem/solution equations involving research and experimentation. Prerequisite: Graduate status and consent of instructor subsequent to portfolio review.
- 5900. GRADUATE SEMINAR.** (3-3-0). Discussion of contemporary trends and developments in art; investigation of studio or theoretical problems.
- 5950. RESEARCH IN ART.** (3 to 6-3-0). Research techniques and their application in visual arts; preparation of prospectus.
- 5970. CREATIVE RESEARCH DOCUMENTATION.** (3-3-0). Research Techniques and their application in the field of visual arts through intensive individual investigation in the use of primary sources of documentation – graduate thesis part one.
- 5980. CREATIVE RESEARCH EXHIBITION.** (3-3-0). Continuation of Art 5970. Research techniques and their application in the field of visual arts through intensive individual investigation and application – graduate thesis part two.

BIOLOGY (BIOL)

For Undergraduates Only

- 1010. BIOLOGICAL PRINCIPLES I.** (3-3-0). This is the first course in a two-part survey of fundamental biological science. Emphasis is placed on the molecular basis of life, cell structure, metabolism, reproduction, genetics, and gene

- expression. Corequisite: BIOL 1011. (Students may not receive credit for both Biology 1010 and Science 1020).
- 1011. BIOLOGICAL PRINCIPLES LABORATORY I.** (1-0-2). This is a companion laboratory of BIOL 1010. Corequisite: BIOL 1010.
- 1020. BIOLOGICAL PRINCIPLES II.** (3-3-0). This is the second course in a two-part survey of fundamental biological science. Emphasis is placed on diversity of life on earth, evolution, ecology, and plant and animal form, function, and development. Prerequisite: BIOL 1010-1011; Corequisite: BIOL 1021. (Students may not receive credit for both Biology 1020 and Science 2020).
- 1021. BIOLOGICAL PRINCIPLES LABORATORY II.** (1-0-2). This is a companion laboratory of BIOL 1020. Corequisite: BIOL 1020.
- 1060. MEDICAL TERMINOLOGY.** (3-3-0). The study and practical application of a medical vocabulary system. Includes structure, recognition, analysis, definition, spelling, pronunciation, and combination of medical terms from prefixes, suffixes, and roots.
- 2030. INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS.** (3-3-0). Fundamental principles of Geographic Information Systems (GIS), including components of a GIS, data availability and format, data models, map projections, georeferencing, and image classification. Prerequisite: satisfactory completion of the mathematics core (six hours). Corequisite: Enrollment in 2031.
- 2031. INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS LABORATORY.** (1-0-3). Computer exercises on various topics in GIS. Corequisite: Enrollment in 2030.
- 2040. INTRODUCTORY ANIMAL SCIENCE.** (3-3-0). Modern animal agriculture; problems of breeding, feeding, management, and marketing.
- 2050. INVERTEBRATE ZOOLOGY.** (3-3-0). The biology of all major animal phyla will be examined in a phylogenetic context. Topics will include, but will not be restricted to, development, anatomy, behavior, and ecology. Research articles from the recent primary literature will be discussed in class. Prerequisites: Registration in or credit for 2051; Biology 1020-1021.
- 2051. INVERTEBRATE ZOOLOGY LABORATORY.** (1-0-3). Laboratory will consist of examination and observation of living and preserved specimens. Students will make a representative collection of invertebrate phyla available locally. Prerequisite: Registration in or credit for 2050.
- 2060. MICROBIOLOGY I.** (3-3-0). This introductory course is designed to acquaint students with microorganisms and their activities. Topics covered include microbial cell structure and function, metabolism, and genetics, as well as the control of microbial growth, and the role of microorganisms in disease. Corequisite: BIOL 2061. (Students may not receive credit for both BIOL 2060 and BIOL 2210).
- 2061. MICROBIOLOGY LABORATORY I.** (1-0-3). This course is designed to introduce students to basic techniques in microbiology, such as laboratory safety, aseptic technique, microscopy, staining, culturing, and quantification. Corequisite: BIOL 2060.
- 2070. FORENSIC ENTOMOLOGY.** (3-3-0). The scientific examination of insects and other arthropods associated with the decomposition of human and animal remains, feedstuffs, as well as insects or their parts associated with humans or their activities. Prerequisite: BIOL 1020-1021. Co-requisite: 2071.
- 2071. FORENSIC ENTOMOLOGY LABORATORY.** (1-0-3). The forensic entomology laboratory will familiarize students with the biology and identification of insects and other arthropods of forensic significance. Co-requisite: 2070.
- 2080. COMPARATIVE ANATOMY.** (2-2-0). The vertebrate systems, morphology, taxonomy, and evolution of the chordate groups; comparative dissections of dogfish, necturus and cat. Prerequisites: Biology 1020-1021. Co-requisite: Biology 2081.
- 2081. COMPARATIVE ANATOMY LABORATORY.** (2-0-4). Co-requisite: BIOL 2080.
- 2090. MICROBIOLOGY II.** (3-3-0). This course is a continuation of Microbiology I. The role of microbes in diverse natural systems, microbial nutrition, growth ecology, genetics, metagenomics and environmental interactions will be explored. Prerequisite: BIOL 2060.
- 2091. MICROBIOLOGY LABORATORY II.** (1-0-3). This course is designed to introduce students to the advanced techniques encountered in microbiology laboratories, such as determining bacterial growth curves and enumeration via plating, direct count, UV measurement, flow cytometry. The growth rates will be measured as influenced by temperature, pH, osmotic pressures via salts and other environmental pressures. Culturing of anaerobic bacteria with emphasis on biodegradation and industrial production will be investigated. Prerequisite: Credit in BIOL 2061 and registration in BIOL 2090.
- 2100. GENERAL BOTANY.** (2-2-0). Structure and functions of plant cells, tissues, and organs; nutrition, metabolism, water relations, growth of plants. Prerequisite: Registration in or credit for 2101; Biology 1020-1021 or consent of instructor.
- 2101. GENERAL BOTANY LABORATORY.** (1-0-2). Prerequisite: Registration in or credit for 2100.
- 2120. SOIL SCIENCE.** (2-2-0). Fundamentals. Origin, composition, and classification of soils; their physical, chemical, and biological properties; significance of these properties to soil-plant relationships and soil management. Prerequisite: registration in or credit for CHEM 1040, 1031, 1041, or 1070. Co-requisite: BIOL 2121.
- 2121. SOIL SCIENCE LABORATORY.** (1-0-2). Co-requisite: BIOL 2120.
- 2140. INTRODUCTORY PLANT TAXONOMY.** (2-2-0). Identification and classification of local seed plants and ferns; field trips and collections; keys, manuals and herbaria. Prerequisite: Registration in or credit for 2141; Biology 1020-1021.
- 2141. INTRODUCTORY PLANT TAXONOMY LABORATORY.** (1-0-2). Prerequisite: Registration in or credit for 2140.
- 2150. DENDROLOGY.** (2-2-0). Principal trees of Southeast U.S.; identification and distribution; introduction to keys. Prerequisite: Registration in or credit for 2151.
- 2151. DENDROLOGY LABORATORY.** (1-0-2). Field identification of trees of Southeast U.S. Prerequisite: Registration in or credit for 2150.
- 2180. NATURAL RESOURCES POLICY.** (3-3-0). This course examines the evolution of wildlife, fisheries, and other natural resources policy, law, and administration in the United States. Historical development, present laws, and likely future trends will be examined. Emphasis will be placed on federal laws and agencies, along with the influence of federal policies on state agencies. Additional topics include a survey of the administration and responsibilities of Louisiana's natural resources agencies, the influence of non-government organizations on natural resources policy, and international policies.
- 2190. SURVEY OF MYCOLOGY.** (3-3-0). This course provides a survey of the field of mycology. Focus will be placed on understanding the general nature, structure, function, and biochemistry of the fungi as well as their roles/impact in the environment, biotechnology, and health/medicine. Prerequisite: BIOL 2090, junior standing or permission of instructor.
- 2210. MICROBIOLOGY FOR NURSING AND ALLIED HEALTH MAJORS.** (3-3-0). An introduction to the subject of microbiology, including: basic microbial cell structure and function, microbial metabolism, control of microbial growth,

- and the impact of microbes on human health. Students may not receive credit for this course and BIOL 2060.
- 2240. INTRODUCTORY HUMAN GENETICS.** (3-3-0). Fundamental concepts and tools in modern medical practice of genetics. Emphasis is placed on: principles of inheritance, normal and pathological genetic variation in humans, and modern techniques used in identification and screening of genetic disorders. Students may not receive credit for this course and BIOL 3270.
- 2250. ANATOMY AND PHYSIOLOGY I FOR NURSING AND ALLIED HEALTH MAJORS.** (3-3-0). This course is the first of a two-part series designed to provide Nursing and Allied Health majors with a foundation in human biology with emphasis on clinical aspects and the interrelatedness of organ systems. This course covers cell biology, histology, and structure and function of the integumentary, musculoskeletal, and nervous systems.
- 2251. ANATOMY AND PHYSIOLOGY LABORATORY I FOR NURSING AND ALLIED HEALTH MAJORS.** (1-0-2). This is a companion lab for BIOL 2250. Prerequisite: Registration in or credit for BIOL 2250.
- 2260. ANATOMY AND PHYSIOLOGY II FOR NURSING AND ALLIED HEALTH MAJORS.** (3-3-0). This course is the second of a two-part series designed to provide Nursing and Allied Health majors with a foundation in human biology with emphasis on clinical aspects and the interrelatedness of organ systems. This course covers structure and function of the endocrine, circulatory, immune, respiratory, digestive, urinary, and reproductive systems. Prerequisite: BIOL 2250.
- 2261. ANATOMY AND PHYSIOLOGY LABORATORY II FOR NURSING AND ALLIED HEALTH MAJORS.** (1-0-2). This is a companion lab for BIOL 2260. Prerequisite: Registration in or credit for BIOL 2260.
- 2290. INTRODUCTION TO WILDLIFE AND FISHERIES MANAGEMENT.** (3-3-0). Survey of wildlife populations including ecology and management principles. Emphasis on resident wildlife of the South including white-tailed deer, wild turkey, rabbits, tree squirrels, bob-white quail, alligators, and other game, non-game, exotic and endangered species and predators. Survey of fish populations including biology and management principles. Emphasis on resident warm-water fish and coastal anadromous species management to include largemouth bass, striped and hybrid striped bass, sunfish, crappie, catfish, and other species of interest. Pond and reservoir management will be addressed as well as commercial fisheries and aquaculture. Management of organisms, habitats, and human users will be examined from an ecological and sociological perspective.
- 2300. ENVIRONMENTAL HEALTH.** (3-3-0). This course is designed to provide an overview of environmental health. Environmental health focuses on the health interrelationships between people and their environment, promotes human health and well-being, and fosters a safe and healthful environment. Topics include the role of environmental health in contemporary society, an overview of current environmental issues (global warming, biodiversity, conservation, pollution, wetlands, sustainable agriculture, population growth), agents of environmental disease, and tools used by public health officials.
- 2500. TOXICOLOGY: THE SCIENCE OF POISONS.** (3-3-0). This course covers basic principles of toxicology and toxic effects of drugs and chemicals from an organ/system perspective. The general principles are broadly applicable; the organ/system discussion is applicable principally to mammalian (including human) toxicology and includes dose-response relationships, biotransformation, mechanisms of toxicity, and means of assessing toxicity for various organs.
- 2950. BIOLOGY LABORATORY TEACHING PRACTICUM.** (1-0-3). Specifically designed to involve students in the preparation and evaluation of a biology laboratory through direct participation in laboratory activities. Field experiences required. May be repeated for up to a total of 3 credit hours. Prerequisite: 1011-1021.
- 2990. ENVIRONMENTAL LAW.** (3-3-0). This course will provide students with an overview of some of the major environmental statutes in the United States; address the variety of regulatory tools and concepts that can be used to prevent environmental harm, focusing on the proper match between regulatory tool and environmental harm; and discuss the role of other disciplines (e.g., science) and alternative means (e.g., public awareness) to facilitate changes in environmental policy. Prerequisite: Six hours of microbiology and core English completion.
- 3010. ENTOMOLOGY.** (2-2-0). Introduction to Phylum Arthropoda. Fundamentals of morphology, physiology, systematics, and life histories. Prerequisites: Registration in or credit for 3011; Biology 1020-1021.
- 3011. ENTOMOLOGY LABORATORY.** (1-0-3). Prerequisite: Registration in or credit for 3010.
- 3020. PHARMACOLOGY.** (3-3-0). This course is designed to offer a description of the clinical use of pharmacological agents, and provide an understanding of the mechanisms by which therapeutics alter biological function. Each class of FDA approved drug products will encompass the effects of medications on different organ systems, and in the context of clinical diagnoses of disease. Prerequisite: CHEM 1040.
- 3030. DISEASES OF FARM ANIMALS.** (3-3-0). Causative agents, prevention, diagnosis and treatment. Prerequisite: BIOL 2040; VTEC 2090-2091, or consent of instructor.
- 3040. ORNITHOLOGY.** (2-2-0). Techniques of bird study; adaptive significance and evolution of bird behavior, ecology, physiology and morphology; field identification and natural histories of Louisiana species. Prerequisite: Registration in or credit for 3041; Biology 1020-1021.
- 3041. ORNITHOLOGY LABORATORY.** (1-0-3). Prerequisite: Registration in or credit for 3040.
- 3050. PRINCIPLES OF ANIMAL NUTRITION.** (3-3-0). Digestion, absorption, utilization, chemical composition values of nutrients. Prerequisite: Four hours of general chemistry and three to four hours of organic chemistry.
- 3060. BIostatISTICS.** (3-3-0). Statistical analysis of biological data. Parametric and nonparametric statistics. Prerequisite: Mathematics 1020.
- 3061. BIostatISTICS LABORATORY.** (1-0-2). This is a companion laboratory of BIOL 3060. Students will be introduced to the programming language R, which is designed for statistical analysis and graphical representation of data. Data analysis will complement and augment topics covered in BIOL 3060. Co-requisite: BIOL 3060.
- 3070. CONSERVATION BIOLOGY.** (3-3-0). This course covers the biological aspects of rarity and how plant and animal populations respond to human activities. We will also examine techniques used to protect and restore threatened and endangered plants and animals.
- 3090. FOOD MICROBIOLOGY.** (2-2-0). Role of microorganisms in food industries, their focus on disease-causing microbes associated with food; as well as the use of microbes in food production. Prerequisite: 2060 and 2061.
- 3091. FOOD MICROBIOLOGY LABORATORY.** (2-0-4). Laboratory techniques used in the detection, elimination and prevention of disease-causing microbes associated with food; utilization of microbes in food production. Prerequisite: 2060 and 2061.
- 3110. GEOMICROBIOLOGY.** (3-3-0). The first half of this course covers basic principles of geomicrobiology including how microorganisms influence carbon, nitrogen, phosphorus, sulfur cycles as well as the metabolism of hydrocarbons. The second half of this course applies those principles to current biotechnology – specifically, the microbiology occurring in man made environments such as wastewater and drinking water treatment, bioremediation, and the corrosion of infrastructure. Prerequisites: BIOL 2090, CHEM 1040.

- 3130. MICROBIAL GENOMICS.** (3-3-0). This lecture course is designed to provide students with a broad overview of microbial genomes. Emphasis is placed on specificities of both, prokaryotic and eukaryotic microbial genomics, and their applicability. Prerequisite: BIOL 2060 or BIOL 3270.
- 3140. HERPETOLOGY.** (2-2-0). Classification, structure, evolution, natural history, and distribution of amphibians and reptiles. Laboratory emphasis on Louisiana forms. Collection required. Prerequisite: BIOL 2080-2081, or consent of instructor. Co-requisite: BIOL 3141.
- 3141. HERPETOLOGY LABORATORY.** (1-0-3). Co-requisite: BIOL 3140.
- 3170. HISTOLOGY.** (2-2-0). Cytology and microanatomy of animal tissues, principally mammalian. Prerequisites: BIOL 1020-1021, 2080-2081. Co-requisite: BIOL 3171.
- 3171. HISTOLOGY LABORATORY.** (2-0-4). Co-requisite: BIOL 3170.
- 3210. GENERAL PARASITOLOGY.** (3-3-0). Introduction to principles of parasitology and major parasite groups affecting human and non-human host. Prerequisite: BIOL 1010/1011 and 1020/1021. Corequisite: BIOL 3211.
- 3211. GENERAL PARASITOLOGY LABORATORY.** (1-0-3). This is a companion laboratory of BIOL 3210. Co-requisite: BIOL 3210.
- 3220. WILDLIFE MANAGEMENT AND TECHNIQUES.** (3-3-0). Methods and principles of studying animal populations; population growth, movements, measurements and modeling; habitat management and alteration; legislation and wildlife management; administration and planning; management applications to big game, small mammals, water- fowl, shore and upland birds, non-game, endangered and exotic species; animal damage and impacts. Prerequisites: Registration in or credit for 3221; Biology 1020-1021.
- 3221. WILDLIFE MANAGEMENT AND TECHNIQUES LABORATORY.** (1-0-3). Use of literature to include data bases; research methods; population dynamics; control of animal populations; values of regulations, refuge system, artificial propagation, predator control and habitat improvement; trapping, tapping, marking, telemetry procedures; restoration, restocking and hacking programs; field trips to area wildlife management agencies at federal, state, and private levels. Three-day weekend trip to an area such as Rockefeller Wildlife Refuge is required. Prerequisite: Registration in or credit for 3220.
- 3250. CELL BIOLOGY.** (3-3-0). This course is designed to provide students with a fundamental understanding of basic cellular functions. Emphasis is placed on cell structure, organelle function, intracellular transport mechanisms, and intracellular and extracellular signaling. Prerequisites: BIOL 1010-1011.
- 3270. GENETICS.** (3-3-0). Principles of heredity and their application to plants and animals, including man. Prerequisite: Eight hours of biological sciences to include either Biology 1020-1021, or SBIO 1830-1831. Corequisite: 3271.
- 3271. GENETICS LABORATORY.** (1-0-3). This lab is designed to introduce the students to basic techniques in microbial and yeast genetic analyses. Emphasis is placed on demonstrating experimentally the topics discussed in BIOL 3270. Prerequisite: Eight hours of biological sciences to include either Biology 1020-1021, or SBIO 1830-1831. Corequisite: 3270.
- 3280. EVOLUTION.** (3-3-0). This course is designed to introduce students to the basic mechanisms of evolution, including adaptive and neutral processes. Evolution will be examined at scales ranging from molecular to ecological, and in populations over a few generations to over millennia. Emphasis will be placed on connections of evolution to molecular, developmental, and behavioral biology, physiology, genetics, ecology and environmental science. Prerequisite: BIOL 2020.
- 3290. EPIDEMIOLOGY.** (3-3-0). Spread and control of infectious diseases; role of hospital personnel in diagnosis, spread, and control of infection in the hospital and community. Prerequisite: BIOL 2060 or 2210.
- 3310. HUMAN ANATOMY AND PHYSIOLOGY I.** (3-3-0). This course and BIOL 3320, are a two-part series designed to provide Biology majors interested in health care professions with an integrated understanding of the structure and function of human organ systems. BIOL 3310 covers the integumentary, skeletal, muscular, and nervous systems. Prerequisites: BIOL 1010, 1020. Co-requisite: BIOL 3311.
- 3311. HUMAN ANATOMY AND PHYSIOLOGY LABORATORY I.** (1-0-3). This is a companion laboratory for BIOL 3310. Prerequisite: registration in or credit for BIOL 3310.
- 3320. HUMAN ANATOMY AND PHYSIOLOGY II.** (3-3-0). This course and BIOL 3320, are a two-part series designed to provide Biology majors interested in health care professions with an integrated understanding of the structure and function of human organ systems. BIOL 3320 covers the endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems. Prerequisite: BIOL 3310. Co-requisite: BIOL 3321.
- 3321. HUMAN ANATOMY AND PHYSIOLOGY LABORATORY II.** (1-0-3). This is a companion laboratory for BIOL 3320. Prerequisite: registration in or credit for BIOL 3320.
- 3340. ANIMAL BEHAVIOR.** (3-3-0). Perception of the external world; orientation; motivation; social behavior; communication. Prerequisites: Biology 1020-1021; junior standing.
- 3341. ANIMAL BEHAVIOR LABORATORY.** (1-0-3). Experiments designed to illustrate the principles of animal behavior; communication. Prerequisites: Biology 1020-1021; or consent of instructor; junior standing.
- 3500. FORENSIC DEATH INVESTIGATION.** (3-3-0). The scientific techniques used in medicolegal investigations, injury and death, firearm injuries, transportation injuries, physical injuries, trauma and disease, asphyxial deaths, infanticide and forensic evidence and records for the court. Pre-requisite: BIOL 1020-1021, 2070-2071. Co-requisite: 3501.
- 3501. FORENSIC DEATH INVESTIGATION LABORATORY.** (1-0-2). The laboratory will address physical evidence associated with human remains including forensic botany and palynology, serology, taphonomy and anthropology. Co-requisite: 3500.
- 3630. DISEASES OF WILDLIFE.** (3-3-0). Study of infectious diseases, including parasites, bacteria, and viruses that infect wildlife. Emphasis given to diseases and wildlife common to the southeastern region of the United States. Prerequisite: BIOL 1020.
- 3900. SPECIAL TOPICS IN BIOLOGY.** (1 to 3-1 to 3-0). In-depth study of various upper-level elective topics in the biological sciences; in particular, those not included explicitly among the catalog listings. Prerequisite: 1010/1011, 1020/1021 or consent of instructor. This course may be repeated any number of times, but no more than 9 credit hours may be applied toward a B.S. degree.
- 3901. SPECIAL TOPICS IN BIOLOGY LABORATORY.** (1 to 3-0-1 to 9). In-depth laboratory component of various upper-level elective topics in the biological sciences; in particular, those not included explicitly among the catalog listings. Prerequisite: 1010/1011, 1020/1021 or consent of instructor. Co-requisite: 3900. This course may be repeated any number of times, but no more than 3 credit hours may be applied toward a B.S. degree.
- 4030. MARINE ECOLOGY.** (4-4-0). Relationships of marine and estuarine organisms; ecological process of energy and materials flow; communities and ecosystems of Louisiana coastal zone. Prerequisites: BIOL 1020; BIOL 2050. Two to three field trips to Louisiana Marine Consortium coast laboratory [LUMCON]. Field trips are required to pass the course.

- 4040. MAMMALOLOGY.** (3-3-0). Behavior, ecology, physiology, morphology, evolution, and zoogeography of mammals; taxonomy of mammals of the world; techniques of mammal study; identification of Louisiana species. Prerequisites: Registration in or credit for 4041; Biology 1020-1021.
- 4041. MAMMALOLOGY LABORATORY.** (1-0-3). Prerequisite: Registration in or credit for 4040.
- 4060. EMBRYOLOGY.** (3-3-0). Principles of animal development with emphasis on fruit fly, roundworm, zebrafish, chicken, and mammalian embryology. Prerequisites: BIOL 1020-1021. Corequisite: BIOL 4061.
- 4061. EMBRYOLOGY LABORATORY.** (1-0-3). In-depth laboratory study of both living and preserved animal embryos. Prerequisites: BIOL 1020-1021. Corequisite: BIOL 4060.
- 4070. CARDIOVASCULAR PHYSIOLOGY.** (3-3-0). This course provides instruction on the fundamental understanding of the molecular and cellular physiology of the cardiovascular system. Topics include the anatomy, physiology, and pathology of the vasculature in relation to heart disease. Prerequisite: BIOL 3250.
- 4120. PATHOGENIC MICROBIOLOGY.** (3-3-0). Micro-organisms that cause disease in man and animals; their isolation and identification; mechanisms of disease causation; and methods of control. Prerequisites: BIOL 2060-2061. Co-requisite: BIOL 4121.
- 4121. PATHOGENIC MICROBIOLOGY LABORATORY.** (1-0-3). Co-requisite: BIOL 4120.
- 4130. NEUROSCIENCE.** (3-3-0). In this course, the structures and functions of the human nervous system will be explored. Nerve cells and how they communicate chemically will be studied as well as the sensory systems such as touch, vision, and olfaction. The neurobiology of human behavior, including learning and memory, emotions, and language will also be examined. Finally, the mechanisms involved in the changing brain that can influence circuit differentiation along with repair and regeneration of the nervous system will be discussed. Prerequisite: BIOL 1010, 1020.
- 4150. ANIMAL BREEDING.** (3-3-0). Basic genetic principles in livestock breeding and selection; use of heritability estimates, inbreeding and crossbreeding. Prerequisite: BIOL 2040; three hours of genetics; senior standing or consent of instructor.
- 4160. BIOLOGICAL SCIENCES INSTRUMENTATION.** (1-1-0). This course introduces students to the theoretical principles behind major biological instruments, and to their practical use in research and analytical laboratories. Prerequisite: BIOL 2060-2061, 4300-4301.
- 4161. BIOLOGICAL SCIENCES INSTRUMENTATION LABORATORY.** (2-0-4). This is a companion laboratory of BIOL 4160. Co-requisite: BIOL 4160.
- 4170. LIMNOLOGY-AQUATIC BIOLOGY.** (2-2-0). Physical, chemical and biological properties of inland waters. Prerequisites: Registration in or credit for 4171; Biology 1020-1021; six hours of chemistry.
- 4171. LIMNOLOGY-AQUATIC BIOLOGY LABORATORY.** (1-0-3). Prerequisite: Registration in or credit for 4170.
- 4180. BIOLOGY OF FISHES.** (2-2-0). Taxonomy, anatomy, physiology, evolution life history and ecology of freshwater fishes. Prerequisites: registration in or credit for 4181; 2060-2061, or consent of instructor.
- 4181. BIOLOGY OF FISHES LABORATORY.** (1-0-3). Prerequisite: registration in or credit for 4180.
- 4190. IMMUNOLOGY.** (3-3-0). This course is designed to provide students with a fundamental understanding of immune responses. Topics covered include the cells and tissues of the innate and acquired immune systems, antibody production, lymphocyte activation and specificity, and immune effector functions. Prerequisites: BIOL 2060-2061, 3250-3251. Co-requisite: BIOL 4191. BIOL 3270-3271 strongly recommended but not required.
- 4191. IMMUNOLOGY LABORATORY.** (1-0-3). This course is designed to introduce students to basic techniques in immunology. Emphasis is placed on exploring antigen-antibody interactions. Co-requisite: BIOL 4190.
- 4210. APPLIED MICROBIOLOGY.** (2-2-0). Microbiological aspects of milk, food, industry, soils, water and domestic wastes. Prerequisite: 2060-2061. Co-requisite: BIOL 4211.
- 4211. APPLIED MICROBIOLOGY LABORATORY.** (2-0-4). Co-requisite: BIOL 4210.
- 4220. COMPARATIVE VERTEBRATE PHYSIOLOGY.** (3-3-0). Comparison of the physiological adaptation of various vertebrate groups to their environment. Water balance, body temperature and energy metabolism, respiration, circulation, sensory and nervous systems. Prerequisites: BIOL 3310-3311 or 2080-2081. Co-requisite: BIOL 4221.
- 4221. COMPARATIVE VERTEBRATE PHYSIOLOGY LABORATORY.** (1-0-3). Co-requisite: BIOL 4220.
- 4240. PARASITOLOGY TECHNIQUES.** (2-0-4). Advanced, practical study of techniques commonly used in parasitology. Includes classical techniques and molecular techniques. Prerequisites: BIOL 3210 or BIOL 3630 or BIOL 4260 or permission of instructor.
- 4260. MEDICAL ENTOMOLOGY.** (3-3-0). In this course you will learn the biology, disease relationships, and control of various arthropods of medical and/or One Health importance; epidemiological concepts and pathogen-vector relationships. Prerequisites: BIOL 1010, 1020, 2020.
- 4261. MEDICAL ENTOMOLOGY LABORATORY.** (1-0-3). In this laboratory course you will learn survey, collection, and taxonomy methods of arthropods of medical and/or One Health importance. Corequisite: BIOL 4260.
- 4270. VIROLOGY.** (3-3-0). This course is designed to provide students with a fundamental understanding of the basic biological properties of animal viruses. Emphasis is placed on viral life cycles (including replication and gene regulation), viral pathogenesis, and virus-host cell interactions. Prerequisite: BIOL 2060-2061; BIOL 3270 strongly recommended but not required.
- 4280. PATHOPHYSIOLOGY.** (3-3-0). This course provides an in-depth study of human pathological processes and their effects of homeostasis. Emphasis is on interrelationships among organ systems in deviations from homeostasis. Course topics include the etiology, clinical manifestations, and complications of commonly occurring diseases. Prerequisites: BIOL 3310 and BIOL 3320 or BIOL 2080 and BIOL 4220.
- 4300. MOLECULAR BIOLOGY I.** (3-3-0). This is the first course in a two-part series designed to introduce students to the principles and practices of Molecular Biology. BIOL 4300 covers, in depth, the core cellular functions: replication, recombination, repair, transcription and translation. Emphasis is placed on the intricate and highly interconnected regulatory mechanisms that control these functions, including the temporal and spatial order of gene expression, signal transduction mechanisms, as well as the field of Bioinformatics. Prerequisite: BIOL 1010, 1020, 2060, 3250, and 3270. Co-requisite: BIOL 4301.
- 4301. MOLECULAR BIOLOGY LABORATORY I.** (1-0-3). This is a companion laboratory to BIOL 4300. Students will be introduced to the most common techniques of modern molecular biology, including PCR, recombinant DNA technology, and DNA fingerprinting. Co-requisite: BIOL 4300.
- 4310. MOLECULAR BIOLOGY II.** (3-3-0). This is the second course in a two-part series designed to introduce students to the principles and practices of Molecular Biology. BIOL 4310 expands of the topics covered in BIOL 4300 and discusses them from a different perspective. In addition to

studying “what goes on” in the cell, students will be introduced to the scientific methodologies used to arrive at our current knowledge, i.e., “how we got here”. Additional emphasis is placed on emerging technologies including genomic and proteomic analyses, gene therapy and designer therapeutics. Prerequisite: BIOL 4300-4301. Co-requisite: BIOL 4311.

- 4311. MOLECULAR BIOLOGY LABORATORY II.** (1-0-3). This is a companion laboratory to BIOL 4310. Students will be introduced to advanced techniques of modern molecular biology, including cloning, expression of recombinant proteins, and monitoring of gene expression activity. Co-requisite: 4310.
- 4320. CANCER BIOLOGY.** (3-3-0). This course will explore the complex and often paradoxical factors involved in the etiology, progression and treatment of cancer. Students will discuss cancer from different perspectives, including epidemiology, physiology, genetics, immunology, molecular, and cellular biology. Prerequisites: BIOL 3250, 3270, and 4190.
- 4340. BIOETHICS.** (3-3-0). In this course, we will explore the major ethical issues that confront the fields of biomedical science and medicine. Students will analyze these ethical positions and examine relevant case studies. After studying the key facts to each ethical issue, students will be asked to consider their perspective and participate in rigorous debates where they can present their opposing arguments. Prerequisites: BIOL 1010, 1020.
- 4400. GENERAL ECOLOGY.** (3-3-0). Fundamental ecological principles with reference to ecosystem structure and function and interrelationship among and between living and non-living components of nature. Prerequisite: Registration in or credit for 4401, 1020-1021; junior standing or consent of instructor.
- 4401. GENERAL ECOLOGY LABORATORY.** (1-0-3) Sampling and field methods of measurements of abiotic and biotic factors. Prerequisite: Registration in or credit for 4400 or consent of instructor.
- 4410. ADVANCED PARASITOLOGY.** (3-3-0). Advanced study of major concepts in parasitology, including transmission, immunology, pathogenesis, pharmacology, biochemistry, anatomy & physiology, disease control, ecology, evolution, conservation, and biodiversity. Prerequisites: BIOL 3210, BIOL 3630, BIOL 4260, or approval by instructor.
- 4500. ENVIRONMENTAL TOXICOLOGY.** (3-3-0). This course is designed to provide Biology majors with an overview of environmental toxicology, including an examination of the major pollutant classes, their environmental fate, disposition within organisms, and toxicity mechanisms. An emphasis will also be placed on how naturally occurring and anthropogenic toxicants affect the health of living organisms and ecological processes. Prerequisites: BIOL 2500, CHEM 3010.
- 4730. CLINICAL HEMATOLOGY AND COAGULATION.** (6-0-0). Normal and diseased blood characteristics, hematopoiesis, anemias, hemoglobinopathies, leukemias, mechanisms of blood coagulation, manual and automated methods of hematology and quality control; performing tests such as complete blood cell counts, red blood cell indices, sedimentation rates, hematocrits, coagulation rates and factor analysis of manual and automated methods.
- 4740. CLINICAL URINALYSIS.** (2-0-0). Renal morphology, physiology, diseases and diagnostic procedures; chemical and microscopic examination of urine.
- 4750. CLINICAL CHEMISTRY.** (8-0-0). Theory and application of chemical analysis of body fluids in normal and disease states; procedures of manual methods, autoanalyzers, chromatography, electrophoresis, toxicology, radioimmunoassay, blood gas analysis,

instrument calibration and maintenance, test evaluation and quality control.

- 4760. CLINICAL IMMUNOLOGY AND SEROLOGY.** (2-0-0). Principles of immunology and serology and their application to medical laboratory diagnosis; detecting specific antibodies associated with disease, quality control techniques and interpretation of findings.
- 4770. CLINICAL MICROBIOLOGY.** (7-0-0). Isolation, identification, characteristics, diseases caused, disease mechanisms and methods of control of bacteria, mycobacteria, fungi and animal parasites; manual and automated techniques for isolation and identification of microorganisms.
- 4780. CLINICAL IMMUNOHEMATOLOGY.** (4-0-0). Theory and practice of blood banking. Typing and cross matching blood, donor processing, screening and identification of atypical antibodies, recognition of abnormal tests, quality control procedures, administration and technical operation; typing and cross matching, donor blood selection, detection of abnormal antibodies, blood processing, plasmapheresis, and other blood component fractionation procedures.
- 4790. LABORATORY MANAGEMENT.** (1-0-0). Theory and practice of management of laboratory personnel, education, certification, data, quality control, supplies and interaction with patients, hospital personnel and physicians.
- 4900. UNDERGRADUATE SEMINAR.** (1-0-0). Reports and discussions on current research. May be repeated any number of times, but no more than two hours may be applied toward a B.S. degree.
- 4910. CRITICAL READING.** (1-1-0). This is a senior level course that will train students to search, read, critique, and draw conclusions from the primary scientific literature. Prerequisite: senior status or permission of the instructor.
- 4920. SPECIAL PROBLEMS IN MARINE SCIENCE.** (1 to 4-0-0). Directed undergraduate research and study at a coastal laboratory of the Louisiana Universities Marine Consortium. By arrangement.
- 4930. MICROBIAL PHYSIOLOGY.** (3-3-0). Prokaryotic cell biology will be discussed primarily from physiological and biochemical standpoints with a focus on conceptual understanding, integration, and mechanism. Bioenergetics, cell adhesion, the molecular basis of morphogenesis and differentiation, prokaryotic motility and cellular processes related to environmental stresses. Prerequisites: BIOL 2090 and 2190 or CHEM 3010.
- 4940. PROBLEMS IN BIOLOGICAL SCIENCES.** (1 to 3-0-0). Independent undergraduate research. Requirements include: student-instructor meeting as frequently as needed; presentation of the procedures, results, and conclusions of the project in the form of a research paper. Prerequisites: junior standing; consent of the department head and proposed research director. This course may be repeated any number of times, but no more than 6 hours may be applied toward a B.S. degree. Areas of concentration are identified as follows:
 01-anatomy
 02-animal science: animal care and health
 03-animal science: judging techniques
 04-animal science: livestock processing
 05-animal science: meat operations
 06-animal science: nutrition and feeding
 07-animal science: production methods
 08-animal science: reproduction
 09-animal science: selection and evaluation
 10-behavior
 11-biochemistry
 12-botany
 13-development
 14-entomology
 15-fish
 16-genetics

- 17-herpetology
- 18-immunology
- 19-invertebrate zoology
- 20-limnology
- 21-mammalogy
- 22-microbiology
- 23-molecular and cell biology
- 24-ornithology
- 25-parasitology
- 26-physiology
- 27-wildlife

- 4960. WILDLIFE MANAGEMENT PRACTICUM.** (2-0-0). Work experience with federal, state or private industry concerned with management of natural resources. Required of all wildlife minors and coordinated through departmental faculty and cooperating agency. Written report. Prerequisite: Consent of departmental faculty.
- 4970. CAPSTONE COURSE FOR BIOLOGY.** (3-3-0). This class is designed to provide students an opportunity to integrate and apply the knowledge and skills they have acquired during their undergraduate education through an individually-directed research project. The capstone experience will include background research, experimental design, and execution of the experiment. Accommodations to the above description may be granted upon permission of the department head. Prerequisite: senior standing.
- 4990. CAPSTONE COURSE FOR MICROBIOLOGY.** (3-3-0). This class is designed to provide students an opportunity to integrate and apply the knowledge and skills they have acquired during their undergraduate education through an individually-directed research project. The capstone experience will include background research, experimental design, and execution of the experiment. Accommodations to the above description may be granted upon permission of the department head. Prerequisite: senior standing.
- 4995. SCIENTIFIC COMMUNICATON.** (3-3-0). This class is designed to guide students through the process of scientific communication. Students will present their original research data from their capstone course through writing a scientific paper, creating a poster presentation, and/or giving an oral seminar. Students will also prepare professional communication materials, such as a cover letter and curriculum vitae. At the conclusion of the course, students will be required to submit a reflective writing piece about their capstone experience. Prerequisite: BIOL 4970 or 4990.

BIOMEDICAL ENGINEERING TECHNOLOGY (BMET)

For Undergraduates Only

- 3320. DIGITAL SIGNAL PROCESSING.** (3-3-0). Overview of medical equipment networking and telecommunications. Digital signal processing. Digital image processing systems. Prerequisites: Credit for or registration in Electronics Engineering Technology 3310-3311 and Biomedical Engineering Technology 3321 or consent of the instructor.
- 3321. DIGITAL SIGNAL PROCESSING LABORATORY.** (1-0-2). Laboratory course to accompany BMET 3320. DSP software and programming, sinc function, digital filters and Z-transform, statistical analysis, convolution, image processing, Fourier and fast Fourier transforms, digital signal processors. Prerequisite: Credit for or registration in 3320.
- 3370. BIOMEDICAL INSTRUMENTATION.** (3-3-0). Introduction to electronic acquisition and analysis of biomedical signals and imaging; biomedical transducers and actuators; signal conditioning; instrumentation amplifiers; characteristics, practical design, testing, and applications of electronic biomedical measuring instruments. Principles of machine learning. Prerequisites: 3320-3321, credit for or registration in 3371; Electronics Engineering Technology 3310-3311 or consent of instructor.

- 3371. BIOMEDICAL INSTRUMENTATION LABORATORY.** (1-0-2). Laboratory course to accompany BMET 3370. Basic biomedical equipment, data acquisitions and analysis, practical aspects of measurement and instrumentation, biomedical transducers and actuators, amplifiers and instrumentation amplifiers, microcontrollers, computers and programming in medical instruments, patient monitoring systems, x-rays and radiation, temperature and pressure sensors, ECG/EKG testing, biomaterials properties and testing, principles of machine learning. Prerequisite: credit for or registration in 3370 or consent of instructor.
- 4950. BIOMEDICAL ENGINEERING TECHNOLOGY INTERNSHIP.** (3 to 6-0-0). This course, along with Electronics Engineering Technology 4940, is the capstone experience for students in the biomedical concentration within the Electronics Engineering Technology program. Students will complete no fewer than 180 hours of student internship. Students must complete periodic evaluations, special projects, and a final report. Prerequisites: 3370, 3371, Electronic Engineering Technology 4300, 4301, 4940, English 3230, and senior status.

BUSINESS ADMINISTRATION (BUAD)

For Undergraduates Only

- 1040. FUNDAMENTALS OF BUSINESS ENTERPRISE.** (3-3-0). The American business system; business organization and management; finance; marketing; government regulation of business.
- 1800. INTRODUCTION TO INFORMATION TECHNOLOGY.** (3-3-0). An introductory course, focusing on the use of file management; word processing, presentation, and data base management; and social issues related to information technologies.
- 2120. BASIC BUSINESS STATISTICS.** (3-3-0). A basic statistical foundation is developed; emphasis is then placed upon practical business applications including hypothesis testing, ANOVA, contingency table analysis, and introductory regression analysis; material is related directly to business applications. Prerequisite: CIS 1090 or CIS 2000 and any of the following: MATH 1060, 1090, 1100, 1810, 2010, 2050; SMAT 1820, 2000.
- 2180. OFFICE PRODUCTIVITY SOFTWARE I.** (3-3-0). Review of Windows Operating System file management tasks. Emphasizes applications of common office productivity software including Word, Excel, Access, PowerPoint, and Outlook. Course is designed to assist students in preparation for one or more of the MCAS (Microsoft Certified Application Specialist) tests for certification.
- 2200. BUSINESS REPORTS AND COMMUNICATION.** (3-3-0). Communication problems, business letters, employment application procedures. Problem areas investigated by research procedures; sources of data, compilation and arrangement of data, documentation, bibliography, and effective presentation. Prerequisite: BUAD 1800 or CIS 1090 or equivalent, ENGL 1010 and ENGL 1020.
- 3120. INTERMEDIATE BUSINESS STATISTICS.** (3-3-0). Parametric tests applied to business and economic problems. Prerequisite: BUAD 2120 or SSTA 2810.
- 3250. BUSINESS LAW I.** (3-3-0). The study of the legal development of law, an overview of the court system, legal concepts underlying business crimes and torts, contracts, employer-employee relationships, commercial paper, and property rights, ethics. Prerequisite: BUAD 2200 and one of ENGL 2060, ENGL 2070, or ENGL 2110.
- 3260. BUSINESS LAW II.** (3-3-0). Legal concepts underlying the areas of sales, creditors rights, secured transactions, bankruptcy, business organizations including sole proprietorships; review of the UCC, and ethics. Partnerships,