NATURAL SCIENCE (806)

806-112 - Principles of Sustainability
Prepares the student to develop sustainable literacy, analyze the interconnections among the physical and biological sciences and environmental systems, summarize the effects of sustainability on health and well-being, analyze connections among social, economic, and environmental systems, employ energy conservation strategies to reduce the use of fossil fuels, investigate alternative energy options, evaluate options to current waste disposal and recycling in the U.S., and analyze approaches used by your community to promote and implement sustainability. (Prerequisite: 801-136 English Composition 1)
3 Credit hours
54 Lecture hours

806-134 - General Chemistry
Covers the fundamentals of chemistry. Topics include the metric system, problem solving, periodic relationships, chemical reactions, chemical equilibrium, properties of water, acids, bases and salts, and gas laws. Students should complete math placement or Intermediate Algebra before taking this course. (Prerequisite: Test score required to register) Credit for Prior Learning Available
4 Credit hours
54 Lecture hours
36 Lab hours

806-143 - College Physics 1
Presents the applications and theory of basic physics principles. Emphasizes problem solving, laboratory investigation and applications. Topics include laboratory safety, unit conversions and analysis, kinematics, dynamics, work, energy, power, temperature and heat. (Prerequisite: 804-195 College Algebra with Applications)
3 Credit hours
36 Lecture hours
36 Lab hours

806-177 - General Anatomy and Physiology
Examines basic concepts of human anatomy and physiology as they relate to health sciences. Instructional delivery within a classroom and laboratory setting. Using a body systems approach, the course emphasizes the interrelationships between structure and function at the gross and microscopic levels of organization of the entire human body. It is intended to prepare health care professionals who need to apply basic concepts of whole body anatomy and physiology to informed decision making and professional communication with colleagues and patients. (Prerequisites: Two semesters high school or one semester college level Chemistry with a C or higher; Test score required to register) Credit for Prior Learning Available
4 Credit hours
54 Lecture hours
36 Lab hours

806-179 - Advanced Anatomy and Physiology
Advanced Anatomy and Physiology is the second semester in a two-semester sequence in which normal human anatomy and physiology are studied using a body systems approach with emphasis on the interrelationships between form and function at the gross and microscopic levels of organization. Instructional delivery within a classroom and laboratory setting. Experimentation within a science lab will include analysis of cellular metabolism, the individual components of body systems such as the nervous, neuro-muscular, cardiovascular, and urinary. Continued examination of homeostatic mechanisms and their relationship to fluid, electrolyte, acid-base balance and blood. Integration of genetics to human reproduction and development are also included in this course. (Prerequisite: 806-177 General Anatomy and Physiology)
4 Credit hours
54 Lecture hours
36 Lab hours

806-186 - Introduction to Biochemistry
Provides students with skills and knowledge of organic and biological chemistry necessary for application within Nursing and other Allied Health careers. Emphasis is placed on recognizing the structure, physical properties and chemical reactions of organic molecules, body fluids and acids. Additional emphasis is placed on biological functions and their relationships to enzymes, proteins, lipids, carbohydrates and DNA. (Prerequisite: 806-134 General Chemistry or high school or college chemistry with a C or better)
4 Credit hours
54 Lecture hours
36 Lab hours

806-189 - Basic Anatomy
Examines concepts of anatomy and physiology as they relate to health careers. Students correlate anatomical and physiological terminology to all body systems. This course is intended for programs that involve indirect patient care, i.e., Health Information Technology, Clinical Coding, etc. This is not an acceptable course in health-related programs that involve direct patient care, i.e., Nursing, Radiologic Technology, Surgical Technology, etc. This course is not acceptable as a course substitution for 806-177 General Anatomy and Physiology. (Prerequisite: Test score required to register) Credit for Prior Learning Available
3 Credit hours
54 Lecture hours

806-197 - Microbiology
Examines microbial structure, metabolism, genetics, growth and the relationship between humans and microorganisms. Addresses disease production, epidemiology, host defense mechanisms and the medical impact of microbes. Presents the role of microbes in the environment, industry and biotechnology. (Prerequisite: 806-177 General Anatomy and Physiology)
4 Credit hours
54 Lecture hours
36 Lab hours

806-207 - Anatomy and Physiology 1
Examine basic concepts of human anatomy and physiology as they relate to health sciences. Using a body systems approach, this course emphasizes the interrelationships between structure and function at the gross and microscopic levels of organization of the entire human body. It is intended to prepare healthcare professionals to apply basic concepts of whole-body anatomy and physiology to informed decision-making and professional communication with colleagues and patients. (Prerequisite: Test score required to register)
4 Credit hours
54 Lecture hours
36 Lab hours

806-208 - Anatomy and Physiology 2
Anatomy and Physiology 2 features lectures and laboratory exercises dealing with the human body as an integrated structural and functional unit including the cardiovascular system, lymphatic system and immunity, respiratory system, digestive system and metabolism, urinary system, fluid/electrolyte balance and acid/base balance, and reproductive system. Note: this is the second semester course of a two-semester sequence and is not acceptable where a one-semester Anatomy and Physiology course is required. (Prerequisite: 806-207 Anatomy and Physiology 1)
4 Credit hours
54 Lecture hours
36 Lab hours

806-209 - College Chemistry 1
General college chemistry which includes the topics of measurement, chemical nomenclature, chemical reactions and stoichiometry, atomic structure, gas laws, thermochemistry, chemical bonding and solution chemistry. The course is for students who need the first one of two semesters of what is typically considered freshman university level chemistry for science majors and university transfer students. Laboratory work assists in understanding chemical concepts and developing problem-solving skills. (Prerequisite: 804-118 Intermediate Algebra with Applications or test score)
5 Credit hours
72 Lecture hours
36 Lab hours

806-212 - College Chemistry 2
College Chemistry 2 is a continuation of 20-806-209. This course covers fundamental chemical principles, focusing on the properties and behaviors of solutions, kinetics, equilibrium, thermodynamics, and electrochemistry. Students will engage in quantitative problem solving and explore chemical processes through hands-on laboratory activities, utilizing both traditional analytical techniques and computer-assisted data analysis. Emphasis is placed on real-world applications of chemical reactions, reaction mechanisms, and molecular behavior. A strong mathematics background is recommended to effectively manage the extensive use of quantitative analysis and problem-solving throughout the course. (Prerequisite: 20-806-209 College Chemistry 1)
5 Credit hours
72 Lecture hours
36 Lab hours

806-223 - University Physics 1 - Calculus Based
This course is designed to provide a calculus-based approach to the study of physics. Topics include: units and unit conversions, mechanics, rotational mechanics, work and energy, oscillations and waves. (Prerequisite: 804-198 Calculus 1)
5 Credit hours
72 Lecture hours
36 Lab hours

806-224 - University Physics 2 - Calculus Based
This course is a continuation of Calculus Based Physics 1. It is designed to provide a calculus-based approach to the study of physics. Topics include: electric fields, magnetic fields, Maxwell's equations, electromagnetic waves, and optics. Lab activities are related to and support classroom presentations. (Prerequisite: 806-223 University Physics 1 - Calculus Based)
5 Credit hours
72 Lecture hours
36 Lab hours

806-234 - General Biology
Examines fundamental principles of biology with a focus on cellular biology, metabolic processes, genetics, and evolution. Addresses the chemical foundations of living things, cell structure and function, energy production by cells, cellular reproduction, inheritance, molecular genetics, and principles of evolution. Laboratory work reinforces course concepts and emphasizes scientific thinking skills. This course provides one of the two semesters of general biology content typically offered for science majors and university transfer students. (Prerequisite: Test score required to register)
4 Credit hours
54 Lecture hours
36 Lab hours

806-235 - General Biology 2
Examines fundamental principles of biology with a focus on ecology and organismal biology. Addresses the diversity of living things and their ecological interactions. Relates biological structure and function to the ability to carry out fundamental life processes, with an emphasis on plants and animals. Laboratory work reinforces course concepts and emphasizes scientific thinking skills. This course provides one of the two semesters of general biology content typically offered for science major and university transfer students. (Prerequisite: Test score required to register. General Biology (20-806-234) is recommended but not required).
4 Credit hours
54 Lecture hours
36 Lab hours

806-240 - Engineering Mechanics - Statics
This course introduces fundamental concepts of forces, equilibrium, and structural analysis, covering 2D/3D force systems, centroids, trusses, friction, and moments of inertia of areas, laying the groundwork for design and stability of engineering structures, using principles of calculus and physics. (Prerequisite: Completion of or concurrent enrollment in 804-198 Calculus 1)
3 Credit hours
54 Lecture hours

806-241 - Engineering Mechanics - Dynamics
This course introduces fundamental concepts of engineering dynamics, covering kinematics (motion geometry) and kinetics (forces causing motion) for particles and rigid bodies, including Newton's Laws (force-mass-acceleration relations), work-energy, impulse-momentum, and mass moments of inertia, using principles of calculus and physics. (Prerequisite: Completion of or concurrent enrollment in 804-199 Calculus 2)
3 Credit hours
54 Lecture hours

806-375 - Applied Science
Analyzes basic mechanical and electrical science concepts. Theoretical applications that relate to occupational situations are developed. Mathematical calculations and conceptual models are used throughout the course. (Prerequisite: 804-363 Algebraic Applications for Electrical Trades)
2 Credit hours
72 Lecture hours