BIOLOGICAL SCIENCE

BIO101 Introduction to General Science 1 (Arr.) 1 cr. hr. Emphasis is placed on the Biological Sciences. Self-paced instruction offered in the Learning Center. Does not apply toward the AA degree.

BIO103 (2-3) 3 cr. hrs. Local Flora (Odd year spring) This course is designed to acquaint students with local plants by actual collection, identification, preservation and mounting of such plants. Students may choose an area of specialization dealing with fungi, lichens, ferns, or flowering plants.

BIO104 (Arr.) 3 cr. hrs. Local Fauna (On Demand) Prerequisite: Consent of instructor. This independent study course involves exploration of some vertebrate group or topic chosen by the student and instructor. Information may come from literature reviews, interviews with experts, field work and/or field trips. Information gathered will then be compiled in a research paper of appropriate length.

BIO125 (3-4) 5 cr. hrs. General Zoology (Fall) An introduction to the important principles and concepts of zoology. This course emphasizes cell biology, genetics, reproduction, and the major animal phyla. Three lectures and two double laboratory periods per week. This course meets the general education biological science requirement.

BIO133 (3-3) 3 cr. hrs. Environmental Science A general introductory course in human ecology. The general concepts of Ecology will be covered in early chapters. Then the remainder of this course emphasizes human contributions to resource depletion, energy conservation, overpopulation and overconsumption, pollution and subsequent worldwide effects.

BIO143 (0-2) 2 cr. hrs. Environmental Science Laboratory (alternate spring) This course is designed as either a stand-alone, two-hour science credit or as a lab to accompany Environmental Science lecture BIO143. Students will learn to sample and evaluate water, soil, plants, and animals. Recommended as an elective or to fulfill part of the life science requirement.

BIO224 (2-2) 4 cr. hrs. Field Biology (alternate spring) Prerequisite: Either BIO115, BIO125, BIO133, or consent of instructor. This course is designed to acquaint students with local fauna and some flora. The taxonomy and natural history of local forms will be emphasized as well as general information on the major groups of animals and some plants and their ecology. Field trips are required.

BIO224 (3-3) 3 cr. hrs. Survey of Genetics (Even-year spring) Prerequisite: BIO115, BIO125, or BIO133. A survey of the basic principles of genetics with an emphasis on human application and basics of plant genetics. This course is designed to meet general education requirements. It is intended for both the non-science major and the science major.

BIO225 (3-4) 5 cr. hrs. Human Anatomy and Physiology (Spring) Prerequisite: BIO115, BIO125, BIO133, or PHS1125 or higher. This course is designed to provide the student with an understanding of the structure and function of the human body. The course includes microscopic and macroscopic study of tissues, basic chemistry of life processes and skeletal, muscular and cardiovascular systems.

Recommended for science and physical education majors as well as some non-nursing hospital based courses such as radiology. The BIO200 Human Anatomy and the BIO265 Human Physiology for a total of 10 hours are required for the nursing program. BIO224 is considered Anatomy and Physiology for many transferring institutions.

BIO228 (2-2) 3 cr. hrs. Microbiology (Fall) Prerequisite: At least a "C" in BIO260, BIO265, and PHS1125 or consent of the instructor. This course introduces the morphology, biochemical activities, cultivation, control, history of epidemiology and diagnostic procedures used to identify selected microorganisms that are important in the health sciences. This course is required for the ADN nursing program.

BIO260 (3-4) 5 cr. hrs. Human Anatomy (Fall) Prerequisite: Acceptance into ADN or PN nursing program or consent of the instructor. This course is the study of the structure of the human body. Topics include body organization, cellular and developmental anatomy and the anatomy of selected body systems (integumentary, skeletal, cardiovascular, neural and muscular). Remaining body systems are covered in Human Physiology (BIO265). This is a required class in the nursing program.

BIO262 (3-4) 5 cr. hrs. Human Physiology (Spring) Prerequisite: Acceptance into ADN or PN nursing program or consent of the instructor. This course is a continuation of BIO260. The course concentrates on the biochemical, cellular and organ level functioning of those systems introduced in BIO260. Systems include digestive, metabolic, endocrine, cardiovascular, immunology, muscular, neural, renal and respiratory. This course is required for the ADN nursing program.

BIO228 (Arr.) 1 cr. hr. Readings in Honors A small group discussion class which involves reading assignments from books or magazines, experience in leading and participating in discussions, watching selected videos, and writing short papers on particular aspects of the assigned readings.

BIO229 (Arr.) 1 cr. hr. Research in Honors Individual or small groups of students researching some aspect of the life sciences and then compiling and presenting their findings to their peers and/or some community sector, or writing up their results in a well organized paper.
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| **PHS001** | Preparation for Chemistry I  
A coronalized individualized instruction program in introductory chemistry offered through the Learning Center. This course is designed for students with little background in chemistry and mathematics, and is recommended as preparation for PHS125. Does not apply toward an AA degree. |
| **PHS002** | Preparation for Chemistry II  
Prerequisite: PHS001.  
The second course offered through the Learning Center designed for students with little background in chemistry and mathematics, and is recommended as preparation for PHS125. Does not apply toward an AA degree. |
| **PHS003** | Introduction to General Science II  
Emphasis is placed on the physical sciences. Self-paced instruction is offered in the Learning Center. Does not apply toward an AA degree. |
| **PHS013** | Physical Science  
Prerequisite: Grade of "C" or higher in MAT095 or higher level math course, or have a Compass or ACT math score to place into MAT113.  
An introduction to the study of physical science for non-science majors. Especially recommended for elementary education majors. The first half of the course emphasizes the major ideas of physics while the second half emphasizes topics in chemistry. |
| **PHS120** | Introductory Astronomy  
An introduction to astronomical objects, structures, and processes designed for non-science majors. Topics include the history and cultural impact of astronomy, planetary and stellar evolution, galaxies, black holes and other exotic objects, the birth and large-scale structure of the cosmos, and life in the universe. |
| **PHS123** | Oceanography  
This is a course covering all areas of oceanographic study. The primary emphasis is physical oceanography, i.e. waves, tides, currents, shoreline ocean basins, ocean sediments and properties of salt water. A portion of the course covers marine ecology and marine life. |
| **PHS125** | Introductory Chemistry  
Prerequisite: Grade of "C" or higher in MAT095 or higher level math course, or have a Compass or equivalent or ACT math score that would place the student into MAT113.  
A presentation of the fundamentals of chemistry for the non-science major who needs a course in physical science or who wishes to broaden his general scientific knowledge. |
| **PHS135** | General Chemistry I  
Prerequisite: One unit of high school chemistry AND Compass or ACT math score that would place the student into MAT120 or a higher math. High school physics is recommended as is being enrolled in MAT123 or a higher math.  
A presentation of the fundamentals of chemistry for the science or engineering major. The laboratory emphasizes qualitative measurements and procedures. |
| **PHS138** | Qualitative Analysis  
Prerequisite: A grade of "C" or better in PHS135 or equivalent  
The study of the general theories for the qualitative separation and identification of metals. Students perform investigations in the laboratory which are pertinent to and coordinated with the lecture topics. The student may enroll separately from PHS139. |
| **PHS139** | General Chemistry II  
Prerequisite: A grade of "C" or better in PHS135 or equivalent  
A continuation of PHS135 covering more advanced subject matter with the emphasis placed on equilibrium. |
| **PHS142** | College Physics I  
Prerequisite: College Algebra with a grade of "C" or better  
A continuation of PHS142, with emphasis on electricity, magnetism, optics, and modern physics. |
| **PHS144** | College Physics II  
Prerequisite: PHS142 with a grade of "C" or better  
A continuation of PHS142, with emphasis on electricity, magnetism, optics, and modern physics. |
| **PHS223** | General Physics I  
Prerequisite: Should be preceded or accompanied by MAT215.  
An introductory course designed to meet the needs of physical science or engineering majors. Newtonian mechanics, heat and thermodynamics, and introductory mechanical wave motion are included. Three lecture hours, one (1) problem session, and one (1) laboratory per week. |
| **PHS224** | General Physics II  
Prerequisite: PHS223 with grade of "C" or better  
A continuation of PHS223 that includes vectors, force systems, friction, centroids and moment of inertia. |
wave motion and sound, electricity and magnetism, and light phenomena.

PHS225 Modern Physics (spring)
Prerequisites: PHS224 and accompanied by MAT233.
This course includes elements of atomic and nuclear physics, particle interactions, quantum mechanics, special relativity and solid state physics.

PHS220 Introduction to Organic Chemistry
Prerequisite: A grade of "C" or better in PHS125 or equivalent.
A brief introduction to modern organic chemistry for students interested in agriculture, biology, human or veterinary medicine, pharmacy, nursing, medical technology, health science, home economics, and forestry.

PHS235 Organic Chemistry I (fall)
Prerequisite: A grade of "C" or better in PHS230 or equivalent.
This is the first half of a two semester course where the theory of the fundamental reactions of organic compounds are studied and practiced. This course is for the student who has chosen chemistry or chemical engineering as a major field of study. It is also for the student who has chosen a field of study such as dentistry, pre-medicine, or pharmacy, where organic chemistry is a supporting subject. Three lectures and two three-hour labs per week.

PHS236 Organic Chemistry II (spring)
Prerequisite: A grade of "C" or better in PHS235 or equivalent.
This is the second half of a two semester course where the theory of the fundamental reactions of organic compounds are studied and practiced. Three (3) lectures and two (2) three-hour labs per week.

PHS240 Earth Science (with lab)
An introduction to the earth sciences emphasizing the structure, materials, and history of the earth, its place in the solar system, and the processes that occur in shaping the earth. Four (4) one-hour lectures and one (1) two-hour laboratory per week.

PHS241 Physical Geology
An introductory course in geology emphasizing the earth's crust, structures and surficial processes. Included in the course is a laboratory study of common minerals and rocks, topographic and geologic maps. There are three lectures and two two-hour laboratories per week. When field trips are scheduled, the laboratory time may be extended to three hours total.

PHS242 Earth Science I
An introduction to the earth sciences emphasizing structure, materials, history of the earth, and the processes that occur in shaping the earth and oceanography.

PHS243 Earth Science II
An introduction to earth sciences emphasizing the atmospheric and astronomical (space) sciences.