Prepared: Julie Freestone Approved: Bob Chapman

Course Code: Title	BIO180: BIOLOGY I FOR PCD
Program Number: Name	3060: PRE-HEALTH CERT DIPL
Department:	PRE-HEALTH
Semester/Term:	17F
Course Description:	This introductory biology course will introduce the student to the basic concepts of biology, both general and human. The course begins with an overview of life and biological systems. This is followed by an introduction to human biology as it relates to health and wellness. Emphasis is placed on organization of the body into cells, tissues and organ systems. Topics include characteristics, classification and organization of life, cell structure and function, meiosis and mitosis, basic Mendelian genetics, homeostasis, and the anatomy and physiology of select human organ systems.
Total Credits:	4
Hours/Week:	4
Total Hours:	60
This course is a pre-requisite for:	BIO181
Vocational Learning Outcomes (VLO's): **Please refer to program web page for a complete listing of program outcomes where applicable.**	#1. Examine fundamental biological concepts, processes and systems of the human body, including the structure, function and properties of the molecules of life, cells, tissues and organ systems in relation to homeostasis and health.
Essential Employability Skills (EES):	#4. Apply a systematic approach to solve problems. #5. Use a variety of thinking skills to anticipate and solve problems. #6. Locate, select, organize, and document information using appropriate technology and information systems. #8. Show respect for the diverse opinions, values, belief systems, and contributions of others. #10. Manage the use of time and other resources to complete projects. #11. Take responsibility for ones own actions, decisions, and consequences.
Course Evaluation:	Passing Grade: 50%,

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Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Final Exam	20%
Mid-term Exam	20%
Unit Tests	60%

Books and Required Resources:

Human Biology, Anataomy & Physiology for the Health Sciences by Roscoe,Wendi A
Publisher: Nelson
ISBN: 9780176507176

Course Outcomes and Learning Objectives:

Course Outcome 1.

1. Describe the characteristics and general organization of life and the human body.

Learning Objectives 1.

- Describe the properties of living things.
- Describe the characteristics of the 6 kingdoms and identify the phyla of the animal kingdom.
- Describe the levels of organization of the human body.
- Identify the organ systems of the human body.
- Describe the general structure and function of each organ system.
- Define anatomical terminology, including directional terms, body regions, planes and cavities.
- Define homeostasis and describe feedback mechanisms.

Course Outcome 2.

2. Relate the major biological molecules to the functioning of the human body.

Learning Objectives 2.

- Describe the basic chemistry of organic molecules.
- Discuss the properties of water that make it an ideal universal solvent in living things.
- Describe how macromolecules are formed and broken down via dehydration synthesis and

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hydrolysis.
- Describe the structure of proteins, carbohydrates and lipids.
- Identify the functions of proteins, carbohydrates and lipids in the human body.
- Describe the general structure of nucleic acids (nucleotides) and compare DNA and RNA.

Course Outcome 3.

3. Identify the structure and function of each organelle in a generalized cell including the cell membrane.

Learning Objectives 3.

- Describe the components of cell theory.
- Describe the difference between prokaryotic and eukaryotic cell structure.
- Identify the cellular organelles and describe the function of each within the cell.
- Describe the structure of the plasma membrane, including its components and their functions.
- Distinguish among various forms of transport across the cell membrane (active and passive
transport, diffusion, osmosis, facilitated transport etc..,).
- Describe the sodium-potassium pump and state its significance.

Course Outcome 4.

4. Demonstrate an understanding of cellular reproduction and genetic inheritance.

Learning Objectives 4.

- Describe the events that occur during the cell cycle.
- Distinguish between mitosis and meiosis and the stages of each.
- Explain the role of mitosis and meiosis in the human life cycle.
- Describe Mendel's theory of inheritance of dominant and recessive traits.
- Calculate the probability of various genotypes and phenotypes using Punnett squares.
- Calculate the various genotypes and phenotypes in a dihybrid cross.

Course Outcome 5.

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5. Describe the structure and function of tissues in the human body

Learning Objectives 5.

- Identify the major types of tissue and state the characteristics of each.
- Describe the main functions and location of each type of body tissue.

Course Outcome 6.

6. Identify the major components and physiology of the musculoskeletal system

Learning Objectives 6.

- List the functions of the skeletal system.
- Classify the bones of the skeletal system and provide examples of each.
- Distinguish between the structure and functions of compact bone, spongy bone, red bone marrow and yellow bone marrow.
- Name, locate and describe the structure of cranial bones, facial bones, the vertebral column and the appendicular skeleton.
- Classify joints structurally and functionally.
- Describe the general structure and the movements allowed by synovial joints.
- List the functions of muscles.
- Identify and locate the major superficial muscles and muscle groups.
- Distinguish structure and functions among skeletal, smooth and cardiac muscle.

Course Outcome 7.

7. Identify the major components and physiology of the nervous and endocrine systems.

Learning Objectives 7.

- List the functions of the nervous system.
- Describe the functional divisions of the nervous system (afferent, efferent, CNS,PNS,SNS,ANS, sympathetic, parasympathetic).
- Describe the types of sensory receptors.

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	• Label a typical multipolar neuron and describe the function of each of its components. • Distinguish among afferent, efferent and interneurons. • Distinguish between white matter and grey matter. • Name and list the function of the six types of neuroglia. • Differentiate between cranial and spinal nerves. • Identify the parts of the brain (cerebrum, cerebellum, brainstem) and state their main functions. • Identify the lobes of the brain.
Date:	Wednesday, August 30, 2017
	Please refer to the course outline addendum on the Learning Management System for further information.