COURSE OUTLINE: BIO181 - BIOLOGY II

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Course Code: Title	BIO181: BIOLOGY II FOR PCD
Program Number: Name	3060: PRE-HEALTH CERT DIPL
Department:	PRE-HEALTH
Semesters/Terms:	19W, 19S
Course Description:	This course will continue to introduce the student to the basic concepts of biology, both general and human. The course follows topics introduced in Bio I PHS PCD with a review of the organization of the body into cells, tissues and organ systems. Topics include the anatomy and physiology of the following human organ systems: endocrine, cardiovascular, respiratory, digestive, urinary, lymphatic and immune. In addition, there will be an introduction to infectious organisms and basic Mendelian genetics. By the end of the course, students will have an appreciation for the complexity of the human body and its functions.
Total Credits:	4
Hours/Week:	4
Total Hours:	60
Prerequisites:	BIO180
Corequisites:	There are no co-requisites for this course.
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**3060 - PRE-HEALTH CERT DIPL** VLO 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) addressed in this course:	EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 6 Locate, select, organize, and document information using appropriate technology and information systems. EES 8 Show respect for the diverse opinions, values, belief systems, and contributions of others. EES 10 Manage the use of time and other resources to complete projects. EES 11 Take responsibility for ones own actions, decisions, and consequences.
General Education Themes:	Science and Technology
Course Evaluation:	Passing Grade: 50%,
Books and Required Resources:	Human Biology, Anatomy & Physiology for the Health Sciences by Roscoe, Wendi A Publisher: Nelson ISBN: 9780176507176

Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
1. Identify the major components and physiology of the endocrine system.	1.1 Define hormone and describe the function of the endocrine system and the role of hormones. 1.2 Describe the relationship between the endocrine system and the ANS. 1.3 Describe the relationship between the hypothalamus and the pituitary gland. 1.4 Identify hormones produced by the thyroid, parathyroid, pancreas and adrenal glands. 1.5 Describe feedback loops controlling sugar and calcium levels in the blood.
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Identify the major components and physiology of the cardiovascular and the respiratory systems	2.1 List the functions of the cardiovascular system. 2.2 Describe cardiac muscle tissue. 2.3 Identify the anatomy of the heart (chambers, valves, blood vessels etc.). 2.4 Trace the flow of blood through the heart, pulmonary and systemic circuits. 2.5 Identify the major blood vessels of the heart (aorta, IVC, SVC, coronary arteries, coronary veins). 2.6 Describe the general structure of blood vessels (arteries, arterioles, veins, venules and capillaries). 2.7 Identify components of blood. 2.8 List the functions of the respiratory system. 2.9 Locate and identify the main structures of the respiratory system. 2.10 Define pulmonary ventilation, internal and external respiration. 2.11 Describe the process of breathing (involvement of ribcage and diaphragm, including the application of Boyle`s Law). 2.12 Differentiate among various respiratory volumes (vital capacity, tidal volume, inspiratory and expiratory reserve, etc.). 2.13 Describe how oxygen and carbon dioxide are transported in the blood.
Course Outcome 3	**Learning Objectives for Course Outcome 3**
3. Identify the major components and physiology of the digestive and urinary systems.	3.1 List the functions of the digestive tract. 3.2 Identify the primary and accessory organs of the digestive system and list their general functions. 3.3 Describe how enzymes work. 3.4 Identify where digestive enzymes are produced, their substrates and end products. 3.5 Define pH and discuss its importance in digestion. 3.6 List the functions of the urinary system. 3.7 Identify and describe the main function of the structures of the urinary system. 3.8 Describe the structure of a kidney. 3.9 Describe the formation of urine in the nephron.

	3.10 Explain the role of the urinary system in maintaining blood pH.
Course Outcome 4	**Learning Objectives for Course Outcome 4**
4. Identify the major components and physiology of the lymphatic and immune systems.	4.1 List the functions of the lymphatic system. 4.2 Identify the structures of the lymphatic system and describe the main function of each. 4.3 Describe lymph and its role in immunity. 4.4 Distinguish among various types of leukocytes and describe their role in immunity. 4.5 Describe innate, non-specific immune responses (fever, inflammation, interferon, prostaglandins, etc.).
Course Outcome 5	**Learning Objectives for Course Outcome 5**
5. Distinguish among various types of infectious agents and describe how each infects the body.	5.1 Describe the normal flora of the human body and their importance. 5.2 Distinguish among infectious agents: bacteria, viruses, fungi and parasites, and briefly discuss their effects on the human body.
Course Outcome 6	**Learning Objectives for Course Outcome 6**
6. Identify the major components and physiology of the reproductive systems.	6.1 Identify male reproductive organs and list their functions. 6.2 Identify female reproductive organs and list their functions.
Course Outcome 7	**Learning Objectives for Course Outcome 7**
7. Demonstrate an understanding of genetic inheritance.	7.1 Describe Mendel`s theory of inheritance of dominant and recessive traits. 7.2 Calculate the probability of various genotypes and phenotypes using Punnett squares. 7.3 Calculate the various genotypes and phenotypes in a dihybrid cross.

Evaluation Process and Grading System:

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

Date: July 17, 2018

Please refer to the course outline addendum on the Learning Management System for further information.