



COURSE OUTLINE

BIO191

Prepared: Leslie Dafoe Approved: Bob Chapman

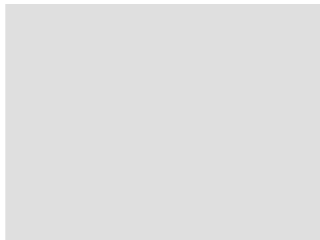
Course Code: Title	BIO191: BIOLOGY II FOR PADD
Program Number: Name	3065: PRE-HEALTH DIP DGR
Department:	PRE-HEALTH
Semester/Term:	17F
Course Description:	This course will enable the learner to continue to develop a foundation in the fundamental concepts of Biological Sciences and application to the systematic study of the human body. The learner will study and explore the following areas: molecular genetics, human anatomy & physiology for a variety of systems, including the nervous, endocrine, cardiovascular, respiratory, digestive, urinary, reproductive, lymphatic and immune systems, and an introduction to infectious organisms and the processes of infectious diseases. The learner will apply these concepts with a systemic approach to the study of the human body. In the context of the study of the various organ systems, the learner will be introduced to common pathologies with examples taken from current scientific research. The emphasis will be on understanding the underlying concepts and principles, and applying them to a diversity of body systems.
Total Credits:	4
Hours/Week:	4
Total Hours:	60
Prerequisites:	BIO190
Vocational Learning Outcomes (VLO's): Please refer to program web page for a complete listing of program outcomes where applicable.	<p>#1. Examine biological concepts, processes and systems of the human body, including genetics and epigenetics, as well as the structure, function and properties of the molecules of life, cells, tissues and organ systems in relation to homeostasis, physical development and health.</p> <p>#4. Use health sciences and other science-related language and terminology appropriately to communicate clearly, concisely, and correctly in written, spoken, and visual forms.</p> <p>#6. Investigate health sciences and science-related questions, problems and evidence using the scientific method.</p>
Essential Employability Skills (EES):	<p>#1. Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.</p> <p>#2. Respond to written, spoken, or visual messages in a manner that ensures effective communication.</p> <p>#4. Apply a systematic approach to solve problems.</p>



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- #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.
- #7. Analyze, evaluate, and apply relevant information from a variety of sources.
- #8. Show respect for the diverse opinions, values, belief systems, and contributions of others.
- #9. Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.
- #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%,

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Final Exam	20%
Midterm Exam	20%
Term Tests (six)	60%

Books and Required Resources:

Human Biology Concepts and Issues by Michael D. Johnson
 Publisher: Pearson Edition: 8
 ISBN: 9780134312699

Course Outcomes and Learning Objectives:

Course Outcome 1.

1. Assess elementary biological systems and determine the relevant biological principles.
2. Communicate scientific and technical information effectively.
3. Describe the fundamentals of molecular genetics, human anatomy & physiology related to the nervous, endocrine, cardiovascular, respiratory, digestive, urinary, reproductive and immune systems, and an introduction to infectious organisms and the processes of infectious diseases.
4. Assess various systems of the human body and determine the relevant biological principles.
5. Synthesize basic physiological principles in order to describe the basic interdependent relationships of the human body systems as they relate to homeostasis.
6. Apply biological principles necessary for success in various Health Science programs.
7. Evaluate the implications of biology and its application to personal, workplace, societal, and global issues.

Learning Objectives 1.



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1. DNA STRUCTURE AND FUNCTION

- 1.1 Describe DNA structure
- 1.2 Explain DNA replication
- 1.3 Discuss DNA mutations

2. GENE EXPRESSION AND REGULATION

- 2.1 Differentiate between transcription and translation
- 2.2 Explain RNA processing and post-translational modifications
- 2.3 Discuss regulation of transcription and translation

3. THE NERVOUS SYSTEM

- 3.1 Name the divisions of the nervous system and describe their function
- 3.2 Identify the types of neurons
- 3.3 Identify neuroglia of the PNS and CNS
- 3.4 Describe nervous tissue
- 3.5 Explain the electrical nerve impulse and synapse
- 3.6 Identify the anatomy of the spinal cord
- 3.7 Explain the reflex arc
- 3.8 Identify the subdivisions of the brain. List the general functions of each.
- 3.9 Identify the lobes of the cerebrum. List the general functions of each.
- 3.10 List the 12 cranial nerves and their main function.
- 3.11 Compare the structural and functional differences of the sympathetic and parasympathetic divisions of the ANS

4. THE ENDOCRINE SYSTEM

- 4.1 Describe the functions of the endocrine system
- 4.2 Identify the types of hormones
- 4.3 Locate and name the endocrine glands of the body
- 4.4 Describe the role of the hypothalamus and pituitary gland
- 4.5 List the functions of the thyroid, parathyroid, pancreas, adrenal glands and reproductive organs

5. THE CARDIOVASCULAR SYSTEM

- 5.1 Describe the functions of the cardiovascular system
- 5.2 Describe the structure and function of the wall of the heart
- 5.3 Explain the initiation and conduction of electrical impulses through the heart
- 5.4 Follow the sequence of blood flow in the heart
- 5.5 Define cardiac output
- 5.6 Differentiate between different blood vessels
- 5.7 Define blood pressure and the factors that can affect BP
- 5.8 Identify major arteries and veins
- 5.9 Describe the composition of whole blood and describe the function of the various components

6. THE RESPIRATORY SYSTEM



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- 6.1 Describe the structure and function of the organs of respiration
- 6.2 Describe the role of the respiratory system in maintaining homeostasis
- 6.3 Define pulmonary ventilation and lung volumes
- 6.4 Explain gas exchange using physical laws
- 7. THE DIGESTIVE SYSTEM
- 7.1 Explain the functions of the digestive system
- 7.2 Identify the organs and the accessory organs of the gastrointestinal tract
- 7.3 Describe the histology of the wall of the GI tract
- 7.4 Identify the digestive enzymes and explain their action
- 7.5 Explain the regulation of digestion
- 8. THE URINARY SYSTEM
- 8.1 Explain the functions of the urinary system
- 8.2 Identify the structures of the urinary system
- 8.3 Describe the general processes of filtration, reabsorption and secretion
- 8.4 Discuss the regulation of the urinary system
- 9. THE REPRODUCTIVE SYSTEM
- 9.1 Identify and describe the function of the organs of the male reproductive system
- 9.2 Explain spermatogenesis
- 9.3 Identify and describe the function of the organs of the female reproductive system
- 9.4 Explain oogenesis and hormonal control
- 9.5 Describe the female reproductive cycle and birth control
- 10. THE LYMPHATIC AND IMMUNE SYSTEMS
- 10.1 Explain the functions of the lymphatic system
- 10.2 Identify the normal flora of the human body
- 10.3 Explain immune cell functions
- 10.4 Explain innate and adaptive immune responses
- 10.5 Discuss antigen presentation
- 11. INFECTIOUS ORGANISMS
- 11.1 Describe the basic characteristics of bacteria and identify common examples
- 11.2 Describe the basic characteristics of viruses and identify common examples
- 11.3 Describe the basic characteristics of parasites and identify common examples
- 11.4 Describe the basic characteristics of fungi and identify common examples
- 11.5 Discuss the role of infectious organisms in infectious diseases

Date:

Wednesday, August 30, 2017

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