BIOL 2114 - Anatomy and Physiology II (version 201003L)

Course Title	Course Development	Learning Support
Anatomy and Physiology II	Standard	No

Course Description

Continues the study of the anatomy and physiology of the human body. Topics include the endocrine system, cardiovascular system, blood and lymphatic system, immune system, respiratory system, digestive system, urinary system,and reproductive system.

Pre-requisites

Pre-requisites: All Required

BIOL 2113 - Anatomy and Physiology I (201003L)
BIOL 2113L - Anatomy and Physiology Lab I (201003L)

Regstr. Co-requisites

Regstr. Co-requisites: None

True Co-requisites

True Co-requisites: All Required

BIOL 2114L - Anatomy and Physiology Lab II (201003L)

Course Length

	Lecture Contact Time	Regular Lab Type	Reg. Lab Contact Time	Other Lab Type	Oth. Lab Contact Time	Total Contact Hrs
Contact Hours Per Week	**3 hrs**	**N/A**	**0 hrs**	**N/A**	**0 hrs**	**3 hrs**
Contact Min/Hrs Per Semester	**2250 min**		**0 min**		**0 min**	**45 hrs**

	Lecture Credit Hours	Lab Credit Hours	Total Credit hours	WLU
Semester Credit Hours	**3**	**0**	**3**	**101.25**

Competencies & Outcomes

Order	Description

1 **The Endocrine System**

Order	Description	Learning Domain	Level of Learning
1	Discuss the functions of the endocrine system in maintaining homeostasis.	Cognitive	Comprehension
2	Contrast the endocrine and nervous systems.	Cognitive	Analysis
3	Explain the general mechanisms by which hormones work.	Cognitive	Comprehension
4	Discuss the control of endocrine organs.	Cognitive	Comprehension
5	Describe the role of the hypothalamus in endocrine control.	Cognitive	Knowledge
6	Describe the location, hormones, and functions of the following endocrine glands: pituitary, thyroid, parathyroid, adrenal, pancreas, ovaries, testes, pineal, and thymus.	Cognitive	Knowledge
7	Describe endocrine disorders of hypo- and hypersecretion.	Cognitive	Knowledge

2 **The Cardiovascular System**

Order	Description	Learning Domain	Level of Learning
1	Describe the anatomy of the heart and heart wall.	Cognitive	Knowledge
2	Describe the flow of blood through the heart including the pulmonary and systemic circuits.	Cognitive	Knowledge
3	Explain the structural and functional features of the conduction system of the heart and EKG tracings.	Cognitive	Comprehension
4	Describe the principal events of the cardiac cycle.	Cognitive	Knowledge
5	Contrast the sounds of the heart and their clinical significance.	Cognitive	Analysis
6	Calculate cardiac output and discuss factors that affect it.	Cognitive	Application
7	List the risk factors involved in heart disease.	Cognitive	Knowledge
8	Contrast the structure and function of the various types of blood vessels.	Cognitive	Analysis
9	Explain how the venous blood is returned to the heart.	Cognitive	Comprehension
10	Explain blood pressure and pulse.	Cognitive	Comprehension
11	Discuss the factors that affect blood pressure.	Cognitive	Comprehension
12	Contrast the clinical significance of systolic, diastolic, and pulse pressure.	Cognitive	Analysis
13	Discuss the mechanism of capillary exchange.	Cognitive	Comprehension
14	Describe blood flow through systemic and pulmonary circuits. Identify the principal arteries and veins of the systemic, pulmonary, and hepatic portal circulations.	Cognitive	Knowledge
15	Describe unique aspects of fetal circulation.	Cognitive	Knowledge
16	Explain the effects of exercise on the cardiovascular system.	Cognitive	Comprehension
17	Describe significant cardiovascular diseases including coronary artery disease and congestive heart failure.	Cognitive	Knowledge

3 **The Blood and Lymphatic System**

Order	Description	Learning Domain	Level of Learning
1	Discuss the function and physical characteristics of blood, lymph, and interstitial fluid, and the lymphatic system.	Cognitive	Comprehension
2	List the components of plasma and their functions.	Cognitive	Knowledge
3	List the characteristics and functions of formed elements.	Cognitive	Knowledge
4	List the lymphoid cells including lymphocytes (T and B cells), plasma cells, macrophages and reticular cells.	Cognitive	Knowledge
5	Discuss lymphoid organs including lymph nodes, bone marrow, spleen, thymus, tonsils and nodule aggregates.	Cognitive	Comprehension
6	Identify the stages involved in hemostasis.	Cognitive	Knowledge
7	Explain the ABO and Rh blood grouping systems.	Cognitive	Comprehension

8	Discuss causes of anemia.	Cognitive	Comprehension
9	Describe selected blood disorders and tests.	Cognitive	Knowledge

4 **The Immune System**

Order	Description	Learning Domain	Level of Learning
1	Discuss the basic properties of immunity.	Cognitive	Comprehension
2	Discuss innate and adaptive immunity.	Cognitive	Comprehension
3	Explain the process of cellular immunity and the role to T-cells.	Cognitive	Comprehension
4	Explain the process of humoral immunity and the role of B-cells and antibodies.	Cognitive	Comprehension
5	Discuss the difference between primary and secondary responses.	Cognitive	Comprehension
6	Describe types of active and passive immunity.	Cognitive	Knowledge
7	Describe selected immune disorders.	Cognitive	Comprehension

5 **The Respiratory System**

Order	Description	Learning Domain	Level of Learning
1	Identify the organs of the respiratory system and describe their functions.	Cognitive	Knowledge
2	Contrast internal and external respiration and explain the role of the alveolar-capillary membrane.	Cognitive	Analysis
3	Describe the events involved in pulmonary ventilation and discuss the significance of pleura.	Cognitive	Knowledge
4	Explain the mechanism of oxygen and carbon dioxide transport in the blood.	Cognitive	Comprehension
5	Describe the various factors that control the rate of respiration.	Cognitive	Knowledge
6	Define selected disorders of the respiratory system.	Cognitive	Knowledge

6 **The Digestive System**

Order	Description	Learning Domain	Level of Learning
1	Identify the organs of the gastrointestinal tract and the accessory organs of digestion and their functions in digestion.	Cognitive	Knowledge
2	Identify the general histological layers of the digestive organs and explain how the layers are modified to accommodate the function of each organ.	Cognitive	Knowledge
3	Describe the mechanical movements of the GI tract.	Cognitive	Knowledge
4	Identify the major digestive secretions and their functions.	Cognitive	Knowledge
5	List the enzymes involved in the breakdown of carbohydrates, fats, and proteins.	Cognitive	Knowledge
6	Describe the process of absorption of fats, carbohydrates, and proteins.	Cognitive	Knowledge
7	Define the processes involved in the formation of feces and defecation.	Cognitive	Knowledge

8	Describe common disorders of the digestive system.	Cognitive	Knowledge
9	Discuss carbohydrate, fat, and protein metabolism.	Cognitive	Comprehension
10	Discuss metabolic rate and the role of the liver in metabolism.	Cognitive	Comprehension
11	Describe the absorptive and post-absorptive states.	Cognitive	Knowledge

7 **The Urinary System**

Order	Description	Learning Domain	Level of Learning
1	Identify the external and internal gross anatomical features of the kidneys.	Cognitive	Knowledge
2	Discuss the formation of urine explaining the microscopic anatomy of the nephron and its basic functions of filtration, reabsorption, and secretion.	Cognitive	Comprehension
3	Discuss the role of the kidney in maintaining blood pressure and the function of the juxtaglomerular apparatus.	Cognitive	Comprehension
4	Explain the role of key hormones on the kidney and their role in water and electrolyte balance.	Cognitive	Comprehension
5	Discuss the role of the kidney in homeostasis of pH.	Cognitive	Comprehension
6	Discuss the components of urine.	Cognitive	Comprehension
7	Discuss the structure and physiology of the ureters, urinary bladder, and urethra.	Cognitive	Comprehension
8	Describe disorders of the urinary system.	Cognitive	Knowledge

8 **The Reproductive System**

Order	Description	Learning Domain	Level of Learning
1	Explain the structure and functions of the male reproductive organs and the pathway of sperm.	Cognitive	Comprehension
2	Discuss the processes of spermatogenesis and spermiogenesis in the male.	Cognitive	Comprehension
3	Describe the normal composition of semen and the role of the accessory sex glands in production of semen.	Cognitive	Knowledge
4	Discuss the role of hormones in the male reproductive system.	Cognitive	Comprehension
5	Explain the structure and functions of the female reproductive organs and the pathway of the egg /zygote.	Cognitive	Comprehension
6	Discuss the process of oogenesis.	Cognitive	Comprehension
7	Discuss the principal events of the menstrual and ovarian cycles and explain all hormones involved.	Cognitive	Comprehension
8	Discuss the physiology of sexual intercourse.	Cognitive	Comprehension
9	Discuss examples of male and female reproductive diseases.	Cognitive	Comprehension