PRAIRIE VIEW A&M UNIVERSITY

Course Title: Biology 1064 Anatomy and Physiology II
BIOLOGY 1064 P01 CRN 30130
PROFESSOR: Dr. Simms
SUMMER 2017

Department of	**Biology**	**College of**	**Arts and Sciences**

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Course Location:	*E. E. Obanion Science Building, Room 101 for lecture, Room 311 for laboratory*
Class Meeting Days & Times:	**MTWTH 8:00 – 2:00pm**
Course Abbreviation and Number:	**Biol 1064 Lecture** **Biol 1064 Lab**
Catalog Description:	**Biology 1054-1064. Anatomy and Physiology II;** (2-4) Credit semester hours each. Introduction to the structure and functions of the human body. Using models, charts and some animal organ dissections in the investigation of the structure of each of the system and its functions studied by experiments. Laboratory fee required. * (BIOL 2401,* 2402)
Prerequisites:	**Biology 1054 Anatomy and Physiology I**
Co-requisites:	

Required Text:	**Biology 1054-1064. Anatomy & Physiology, Prairie View A&M University. Published by McGraw Hill and the accompanying Lab book.**
Recommended Text:	**Electronic Books. Go Green!! www.mhhe.com/ebooks for details.**
Access to Learning Resources:	PVAMU Library: phone: (936) 261-1500; web: http://www.tamu.edu/pvamu/library/ University Bookstore: phone: (936) 261-1990; web: https://www.bkstr.com/Home/10001-10734-1?demoKey=d

Course Goals or Overview: Upon successful completion of this course, you will have had enough exposure and experiences to aid in your understanding of human body, resulting in an appreciation of the complexity, the complementarity of structure, body functions, and the efficiency of the human body in maintaining homeostasis and sustaining life in general.

Course Objectives

1. Describe the generalized function and subdivisions of the nervous system, list and describe the organization and components of the central nervous system.

1. Discuss the main types of cells that compose the nervous system.
2. Describe three main functional ***categories*** of neurons.
3. Describe three functional ***properties*** of neurons.
4. Identify and label the parts of a neuron
5. Explain the transmission of nerve impulses.
6. Explain or define spinal reflex, and list the general components of a reflex.
7. Describe the autonomic nervous system.
8. List the major subdivisions and anatomical landmarks of the brain.
9. Describe the location of the gray and white matter of the brain.
10. Describe the embryonic development of the CNS and relate it to the adult brain anatomy.
11. Describe the meninges of the brain.
12. Describe the fluid filled chambers within the brain.
13. Discuss the production, circulation, and function of the cerebrospinal fluid.
14. Discuss the significance of the brain barrier system.
15. List the components of the hindbrain and midbrain, and their functions.
16. Describe the location and functions of the reticular formation.

17. List the three major components of the diencephalon and describe their locations and functions.
18. Identify the five lobes of the cerebrum.
19. Describe the three types of tracts in the cerebral white matter.
20. List the distinctive cell types and histological arrangement of the cerebral cortex.
21. Describe the location and functions of the basal nuclei and limbic system.
22. List the types of brainwaves and their relationship to sleep and other mental states.
23. Explain how the brain controls the skeletal muscles.
24. Identify the part of the cerebrum that receive and interpret somatic sensory signals.
25. Identify the part of the cerebrum that receive and interpret signals from the specials senses.
26. Describe the locations and functions of the language centers.
27. Discuss the brain regions involved in memory; and discuss the functional relationship between the right and left cerebral hemispheres.
28. List the 12 pairs of cranial nerves, by Roman numerals and names.
29. Identify where each cranial nerve originates and terminates.
30. Discuss the functions of each cranial nerve.
31. Discuss how the autonomic and somatic nervous systems differ in form and functions.
32. Compare and contrast the two divisions of the autonomic nervous system.
33. Identify the anatomical components of the nerve pathways of the sympathetic and parasympathetic divisions.
34. Discuss the relationship of the adrenal glands to the sympathetic nervous system.
35. Name the neurotransmitters employed at different synapses of the ANS.
36. Name the receptors for the neurotransmitters at the various synapses of the ANS.
37. Define receptor and sense organ.
38. Outline three ways of classifying receptors.
39. List several types of some esthetic receptors.
40. Discuss the mechanisms of pain and the spinal blocking of pain signals.
41. Explain how taste and smell receptors are stimulated.
42. List the major organs of the endocrine system, and describe their locations.
43. Name the hormones produced by the various endocrine glands.
44. Identify the chemical class to which various hormones belong.
45. Identify the standard abbreviations for many hormones.
46. Discuss how hormones are removed from circulation after they have performed their roles.
47. Explain the ***physiological*** definition of stress.
48. Discuss how the body adapts to stress through its endocrine and sympathetic nervous systems. Explain what eicosanoids are and how they are produced.
49. List the classes and functions of the eicosanoids.
50. Describe several physiological roles of prostaglandins.
51. List some common disorders related to hyposecretion and hypersecretion of pituitary, thyroid, parathyroid, adrenal glands; and pancreatic functions
52. Describe the cause and pathology of diabetes mellitus.
53. Describe how hormones are synthesized and transported to their target organ.
54. Compare and contrast the nervous and endocrine systems.
55. Describe the myelin sheath that is found around certain nerve fibers and explain its importance.
56. Describe the relationship of unmyelinated nerve fibers to their supportive cells.
57. Explain how damaged nerve fibers regenerate.
58. List and describe the six types of neuroglia.

59. Explain why a cell has an electrical charge difference (voltage) across its membrane.
60. Explain how a nerve signal (impulse) is transmitted down an axon.
61. List and explain the four major categories of neurotransmitters based on chemical composition.
62. Explain how the nervous system translates complex information into a simple code
63. Explain how neurons work together in groups to process information and produce effective output.
64. Explain how memory works at a cellular and molecular level
65. List the three principal functions of the spinal cord.
66. Describe the gross and microscopic structure of the spinal cord.
67. Trace the pathway (tracts) followed by nervous signals traveling up and down the spinal cord.
68. Describe the attachment of a spinal nerve to the spinal cord,
69. List and trace the branches of a spinal nerve distal to its attachment.
70. List the five major plexuses of spinal nerves and describe their general anatomy.
71. Name the major nerves arising from each plexus.
72. Describe the structure and function of the major eye structures, the tunics, lens, and humors of the eye.
73. .Describe the structure and functions of the outer, middle, and inner ears.
74. Explain the sense of touch, taste, pressure, pain, and proprioception.
75. Describe the functions and major components of the circulatory system.
76. Describe in general terms how blood is formed.
77. Describe the composition of blood plasma and serum.
78. Describe the components and physical properties of blood.
79. Describe the form and functions of red bone marrow.
80. Discuss the four types of blood types in terms of antigens, antibodies and Rh factors.
81. Discuss the mechanisms of blood clotting
82. List the factors that hasten blood clotting.
83. Draw and label the coverings, major structures, and cavities of the heart.
84. Describe the anatomical location of the heart.
85. Trace the blood flow from the superior vena cave through each cavity, major valve to the lungs.
86. Trace the blood flow from the major vessels in the lungs to the abdominal aorta.
87. List and describe the arteries that supply the myocardium and the veins that drain the myocardium.
88. Discuss the conduction system of the heart.
89. Interpret a normal electrocardiogram.
90. Explain what causes the sounds of a heartbeat.
91. Define cardiac output.
92. Measure arterial blood pressure.
93. Discuss the general nerve supply to the heart.
94. Describe the structure and functions of hemoglobin.
95. Describe the appearance and relative abundance of each type of leukocyte.
96. List the functions of platelets.
97. Discuss pulmonary and systemic circulation.
98. Discuss the physiology of circulation; differentiate between the types, structure, and function of blood vessels; locate and name the major blood vessels and their tributaries.
99. Discuss the physical principles of blood flow and heart action.
100. Discuss the cause and location of arterial and venous pulse.

101. Discuss the relationship between blood pressure, resistance and flow.
102. Describe how blood pressure is expressed and how pulse pressure and mean arterial blood pressure is calculated.
103. Explain how vasomotor influences blood pressure.
104. Define the cause and effect of edema.
105. Name and describe the stages of shock.
106. Discuss the importance of physical activity in venous return.
107. Discuss the lymphatic system in terms of its formation, structure, function, and circulation.
108. Discuss the location, function and structure of the lymphatic organs (spleen, lymph nodes, thymus, and tonsils).
109. Define: specific immunity; cellular immunity; humoral immunity; active immunity.
110. Describe the structural and chemical properties of antigens.
111. Compare and contrast the T lymphocytes and B lymphocytes.
112. Distinguish between the four classes of immune hypersensitivity and give an example of each.
113. Describe the pathology of immunodeficiency diseases, especially AIDS.
114. Discuss the function of the respiratory system in terms of gaseous exchange.
115. Discuss the location and functions of the nose, pharynx, larynx trachea, bronchi, bronchioles, alveoli and lungs.
116. Discuss the physiology and mechanism of internal and external respiration.
117. Distinguish between normal and abnormal respiration.
118. Name the muscles of inspiration and expiration.
119. Recognize the gas principles and relate that knowledge to the principles of blood gat transport.
120. Contrast the exchange of gal in the lungs to the exchange of gases in the body tissues.
121. List the respiratory control centers and discuss the function of each.
122. Name and identify the main organs of the digestive system.
123. Describe the walls of the digestive organs and modifications of their coats.
124. Describe the following organs according to structure, function and location: Mouth, tongue, salivary glands, teeth , pharynx, esophagus, stomach, small intestines, large intestines, liver, gall bladder, pancreas, vermiform appendix, and internal & external anal sphincters muscles.
125. Compare and contrast chemical and mechanical digestion.
126. Discuss and describe the various types of digestive glands and their secretions.
127. Define metabolism, catabolism, anabolism and absorption of carbohydrates, proteins, minerals, salts, vitamins, water, and fats.
128. Define metabolic rates and the effects of metabolic rates on energy balance and body weight.
129. List the accessory digestive organs.
130. Explain how the stomach produces hydrochloric acid and pepsin.
131. Explain how and where cell produces ATP.
132. Describe how the hypothalamus monitors and controls body temperature.
133. Discuss homeostasis of body temperature.
134. Discuss the microscopic and gross anatomy of the kidneys, testis, prostate gland, uterus and ovaries.

135. Compare and contrast excretion and secretion; list systems that excrete wastes from the body.
136. Trace the flow of urine through a renal nephron.
137. Describe how the renal tubule reabsorbs useful solutes from the glomerular filtrate and return them to the blood.
138. Define buffer and write the chemical equation for the bicarbonate, phosphate, and protein buffer systems.
139. Discuss and describe the microscopic and gross anatomy of the ureters, urinary bladder, urethra, in the male and female.
140. List and discuss the physical and chemical characteristics of urine.
141. Name, locate and discuss the functions of male and female organs of reproduction as seen on pictures and models in the laboratory.
142. Describe the parts of the uterine tube.
143. Describe and discuss the recurring female sexual cycles
144. Describe the pathway taken by sperm from its formation to its ejaculation, naming all structures it passes through.
145. Describe the stages of meiosis and contrast meiosis with mitosis.
146. Draw and label a sperm cell.
147. Describe the composition of semen and the functions of its components.
148. Describe the nerve and blood supply to the penis.
149. Describe the structure of the ovary.
150. Describe the process of sperm migration from the vagina to the uterine tube site of fertilization.
151. Describe the implantation of the pre-embryo into the uterine wall.

Course Evaluation Methods

This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course. *Note: See Program Outcomes in True Outcomes*

STUDENTS IT IS YOUR RESPONSIBILTY TO RECORD YOUR GRADES, AND KEEP UP WITH YOUR GRADES THROUGHOUT THE SEMESTER. YOU CANNOT BE ASKING ME ABOUT YOUR GRADES.

LAB EXAMS ARE GIVEN BACK AFTER A WEEK.

Grading Matrix

Instrument	Value(points or percentage	Total
Lecture	**4 Lecture exams at 100ptseach**	**400**
Exercises	**10 exercises at varies points**	**100**
Laboratory Practical	**3 Practical Exams**	**300**
Lab Assignments	**100 points**	**100**
Comprehensive Final Exam	**100 points**	**100**
TOTAL		**1000**

Grade Determination:

The grading averages as published in the catalogue applies:
A= 90-100, B = 80-89, C = 70-79, D = 60-69, F =59 and below.

TENTATIVE COURSE SCHEDULE

DATE	LECTURE SCHEDULE	LAB SCHEDULE	CONTACT HOURS
	Ch 18: Circulatory: Blood	**Lab 26:**Blood Cells **Lab 27:** Blood Typing.	**3**
	Ch 18: Circulatory: Blood	**Lab 28:** Heart Structure	**3**
	Ch 19: Circulatory: Heart	**Lab 29: Cardiac Cycle Procedure A: Heart Sounds only.**	**3**
	Ch 19: Circulatory: Heart.	Lab 31: Superior Body Arteries	
	Ch 20: Circulatory: Vessels	**Lab 32:** Blood Vessels. **Lab 33: Veins & Special circulation**	**3**
	Ch 20: Circulatory: Vessels	**Lab 35: Pulse rate and Blood Pressure**	**3**
	LECTURE EXAM 1 (Ch18-20)	**Lab Exam I**	**3**
	Ch 21: Lymphatic & Immune	**Lab 34: Lymphatic System.**	**3**
	Ch 21: Lymphatic & Immune **Ch 22:** Respiratory System	**Lab 36: Respiratory Organs.**	
	Ch 22: Respiratory System	**Lab 39: Urinary System & Models** .	**3**
	Ch 22: Respiratory System	**Lab 40: Urinalysis (Optional)** **Kidneys Procedure A only on models**	**3**

	LECTURE EXAM 2 (21-22)	Lab Exam 11	
	Ch 23: Urinary System	Lab 41: Digestive system	**3**
	Ch 24: Water & Electrolytes.	**Lab : Male Reproductive, meiosis**	**3**
	LECTURE EXAM 3 (Ch 23-24) .	**LAB EXAM III**	**3**
	Ch 27 Male Reproduction **& mitosis**	Ex 43: Male Reproductive system	**3**
	Ch 27: Male Reproduction	**Lab 44: Female Reproductive System.**	
	Last Day to drop with a "Q"		
	Ch 28: Female Reproduction	**Development models**	**3**
	Ch 28: Female Reproductive	**Lab 61 genetics**	**3**
	Ch 29: Development	**Genetics Worksheet**	**3**
	Ch 29: Development , Ch 4: Genetics	Review	**3**
	LECTURE EXAM 4 (Ch 27-29, Ch4)	**Review for Final Exam**	**3**
	Final Exam Review		**3**
	Comprehensive Final Exam		**3** **Total Contact hours = 96**

All dates and subject materials are subject to change

Documents: Microsoft Word is the standard word processing tool used at PVAMU. If you're using other word processors, be sure to use the "save as" tool and save the document in either the Microsoft Word, Rich-Text, or plain text format.

Exam Policy

Exams should be taken as scheduled. No makeup examinations will be allowed except under documented emergencies (See Student Handbook).

If you miss an exam consider that to be a zero. Lab exam are given on the schedule date and cannot be made up.

I do not give any prefer to students without documented emergencies so please don't ask for ANY favors.

Each student must purchase scantron for the Lecture exams prior to the first exam. Please buy your scanton during the week as on a weekend the bookstore is closed, Failure to not have a scantron will result in not taking the exam on the schedule date.

Submission of Assignments:

Assignments must be completed, to include name etc and ready for submission (turn into the instructor) on the due date at the beginning of the class period. **IF YOU MISS A CLASS AND AN ASSIGNMENT WAS GIVEN YOU CANNOT MAKEUP THE ASSIGNMENT OR GET A COPY FROM A FRIEND IT WILL NOT BE CORRECTED.**

University Rules and Procedures

Disability statement (See Student Handbook):

Students with disabilities, including learning disabilities, who wish to request accommodations in class should register with the Services for Students with Disabilities (SSD) early in the semester so that appropriate arrangements may be made. In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator.

Academic misconduct (See Student Handbook):

You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

Forms of academic dishonesty:

1. Cheating: deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.

2. Academic misconduct: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.

3. Fabrication: use of invented information or falsified research.

4. Plagiarism: unacknowledged quotation and/or paraphrase of someone else's words, ideas, or data as one's own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one's own work also constitutes plagiarism.

Nonacademic misconduct (See Student Handbook)
The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor's ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

Sexual misconduct (See Student Handbook):
Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

Attendance Policy:
Prairie View A&M University requires regular class attendance. Excessive absences will result in lowered grades. Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in assignment of a grade of "F". **Absences are accumulated beginning with the *first day of class*. A SATURDAY CLASS MEETS ONCE A WEEK, AFTER 2 CLASSES MISSED YOU WILL BE DROPPED.**

Absences on Religious Holy Days- In accordance with Texas education Code, section 61.003, subdivision (7), student may be absence from class for the observance of a religious holy day will be permitted to take missed examinations and complete missed assignments provided the student has notified the instructor of the planned absence in writing and receipt of notification has been acknowledged by the instructor in writing.
"A religious holy day means a holy day observed by a religion whose place of worship is exempt from property taxation under the Texas Tax Code, section 11.20"

Student Academic Appeals Process
Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the Undergraduate Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.

CLASSROOM DECORUM
Do not bring food or drink into the classroom.
Turn off all cell phones, I-pods, pagers and other electronic devices during class.
All electronic devices must be off and out of sight during all quizzes and examinations.

ACADEMIC CALENDAR -Spring 2017

The Prairie View A&M Academic Calendar is subject to change. Please check the Prairie View A&M University website for updates.

GRADE CALCULATION SHEET:

LECTURE GRADES	**ASSIGNMENT GRADES**	**LAB GRADES**	**FINAL EXAM**	**IN CLASS ASSIGNMENT**
1	1	1	1	
2	2	2		
3	3	3		
4	4			
	5			
	6			
	7			
	8			
	9			
	10			
Add and divide by 4 and multiply by .40 _____	Add all 10 divide by 10 and multiply by .25 _____	Add all 3 divide by 3 and multiply by .15	Divide by .10	Add the assignments divide then by the number and multiply by .10

My grade is _____

Acknowledgement Page
I acknowledge that I have read the syllabus for Anatomy & Physiology and understand the effort and time commitment necessary to succeed in this Class. (Over 200 hours of study)

Name: _____

Signature: _____

Date: _____