University of Houston-Downtown

Course Prefix, Number, and Title: BIOL 1304: Human Anatomy and Physiology II

Credits/Lecture/Lab Hours: 3/3/0

Foundational Component Area: Life and Physical Sciences

Prerequisites: Credit for BIOL 1303/1103 and enrollment in BIOL 1104
Co-requisites: None

Course Description: A continuation in the survey of Human Anatomy and Physiology required for students going to nursing or similar professional programs. Emphasis will be placed on endocrine, circulatory, respiratory, digestive, excretory and reproductive systems.

TCCNS Number: BIOL 2302

Demonstration of Core Objectives within the Course:

Assigned Core Objective	Learning Outcome Students will be able to:	Instructional strategy or content used to achieve the outcome	Method by which students' mastery of this outcome will be evaluated
Critical Thinking Empirical & Quantitative Reasoning	Utilize scientific processes to identify questions pertaining to natural phenomena.	Endocrine System: Students will identify the organs and tissues in the endocrine system and the hormones produced by these organs and tissues. Lab (This activity is performed in BIOL 1104, a co-requisite for BIOL 1304). Students will analyze symptoms and data on homeostatic parameters to identify a disorder of the endocrine system. They will identify the cause as Primary or Secondary and will explain the mechanism of action of the hormone and the inter-relationship involved in hypothalamic-pituitary-target axis. Students are provided with lecture notes which includes reference to current topics, medications or other information.	1. Students will submit answers to Critical Thinking questions as individual assignment. Evaluation is based on clarity of explanation and accuracy of content. 2.Students will use the Discussion Board to post questions on any condition related to the Endocrine System from their reading and web sites provided. These discussions are then followed up in class. Students will work on Concept Mapping, Case Studies and Critical Thinking questions as individual assignment. Evaluation is based on the level of analysis and accuracy of information Case studies will allow students to qualitatively and quantitatively analyze data

		Immune System: Students will identify disorders and diseases related to the immune system which includes autoimmune disorders, Hypersensitivities, Tissue grafting, AIDS and SCID. Students will identify the diseases preventable with vaccines. They will identify the category of Immune action and the related cause. Digestive System, Respiratory, Urinary and Reproductive Students study gross and microscopic anatomical structures of the digestive system , Respiratory System, Urinary System and Reproductive System (Lab (This activity is performed in BIOL 1104, a co-requisite for BIOL 1304). They draw correlation between structure and function of the various organs in an organ system.	Case Studies and Critical Thinking Questions are used to assess their conceptual understanding. Rubric is provided to evaluate answers.
Critical Thinking Empirical & Quantitative Reasoning	Utilize scientific processes to develop hypotheses, collect and analyze data using quantitative and qualitative measures.	Respiratory System Lab (This activity is performed in BIOL 1104, a co-requisite for BIOL 1304). Students perform Lung Function Test using the Spirometer in They collect data from other groups. Students will form a hypotheses on the cause associated with the type and occurrence of Respiratory Disorders. They will evaluate the occurrence of the diseases, determine whether it is linked to smoking or allergy; methods of prevention and treatment. The evaluation include determining reflection of changes in anatomical	Students prepare a Lab Report from the data on Lung Function. They will analyze the data and determine any existing conditions. Students survey a small group of friends /family and gather information on respiratory diseases. They will write a paper based on the survey on the type of disorders; explaining the possible cause and Effect on homeostasis. Students participate in an in-class discussion on their research and the data on prevalence and factors leading to the disorders are analyzed. Case studies will allow students to qualitatively and quantitatively

		structures on physiological function and homeostasis. <u>Urinary System (This activity is performed in BIOL 1104, a co-requisite for BIOL 1304).</u> Students perform Urinalysis using the Dipstix method to determine presence or absence of various substances. From their observation they will analyze the process of urine formation, Transport Maximum, Renal Clearance of substances.	analyze data Students will write a Lab Report based on their finding, In Lecture they will work on problem solving questions to determine the process and factors regulating urine formation and from Urinalysis data obtained in Lab.
Critical Thinking Empirical & Quantitative Reasoning Communication	Utilize scientific processes to effectively communicate the analysis and results using written, oral and visual communication.	<u>Cardiovascular System</u>: Lab (This activity is performed in BIOL 1104, a co-requisite for BIOL 1304). Students will use anatomical models and tissue slides to study the anatomical structures of the CVS including blood components. They will analyze disorders related to Blood, Heart and Blood Circulation. They will analyze the cause of various disorders and provide an explanation using flow charts and concept mapping.	Students will work in groups on Case Studies to establish the inter-relationship of the various systems in maintaining homeostasis. They will submit a written Group Report which is graded by a rubric. Case studies will allow students to qualitatively and quantitatively analyze data
Teamwork	Collaborate in the evaluation of the quality of scientific evidence from multiple perspectives toward the goal of reaching a shared objective.	<u>Digestive System</u> Students will perform a study on diet, type of food they like to eat, read the labels thoroughly on the product , note the number of chemicals included (find out about those chemicals);find out about nutrients composition of fresh produce; Make a chart of their diet and calculate daily calorie intake	Students will work in groups for an Oral Presentation on Diet analysis which include food groups, nutrient composition, calorie intake and chemicals used as additives and preservatives as provided on food labels. In addition to the Oral Presentation students will also submit a Written Report. Assessment is by a rubric both for Oral Presentation and the Written Report.

Additional Course Outcomes:

Lecture:

Course goals:

- To become knowledgeable of the basic organization and chemical composition of the human body.
- To learn the essential chemistry necessary to understand how the body is structured and functions.
- To learn the basic structure and function of the endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary, and reproductive systems.
- To develop an understanding of the complex interactions which exist between the above structures and systems.
- To become familiar with the most commonly used biological and medical terminology associated with the above structures and systems.
- To learn and better understand some of the major disease conditions associated with the above structures and systems.
- To gain a much better understanding and appreciation of the anatomy and physiology of the human body.

Students will:

- utilize the scientific process to identify questions pertaining to natural phenomena,
- develop hypotheses,
- collect and analyze quantitative and qualitative data,
- collaborate in the evaluation of the quality of scientific evidence from multiple perspectives toward the goal of reaching a shared objective, and
- communicate analyses and results using written and oral communication.

Lab:

Students will:

- Utilize the scientific process to identify questions pertaining to natural phenomena, develop hypotheses,
- Collect and analyze quantitative and qualitative data,
- Collaborate in the evaluation of the quality of scientific evidence from multiple perspectives toward the goal of reaching a shared objective, and
- Communicate analyses and results using written and oral communication.
- Analyze macro and micro anatomical structures on models and figures on the selected body systems.
- Study and identify anatomical tissues of organs under microscope and relate to the function of the organs
- Build a thorough understanding of the chemical basis of physiological process such as Digestion of common food material and Urine analysis.
- Apply process of Respiration using the spirometer to assess Lung Volume function and be able to assess lung condition (this does not in any way determine any medical condition of a student this is only a study of physiological mechanism).
- Apply knowledge of Blood Typing using simulated blood and be able to predict Blood Types.
- A comparative study of anatomical structures will be done by dissecting Lab prepared cat specimens and Sheep heart. These specimens are preserved in a potentially harmless, carosafe liquid.(If you have any concerns please talk to the instructor immediately).

Course Outline:

Lecture:

- Introduction; Endocrine System
- Cardiovascular System
- Cardiovascular System
- Cardiovascular System
- Cardiovascular System
- Cardiovascular System
- Lymphatic & Immune System
- Immune System
- Respiratory System
- Digestive System
- Urinary System
- Urinary System
- Urinary System Contd. & Reproductive System
- Reproductive System

Lab:

- Syllabus, Safety Rules,; Slides on Endocrine System, Locating Endocrine Organs
- Blood Lab
- Blood Typing, Hematocrit, and Hemoglobin Determination, Identifying Different types of White Blood Cells
- Identifying Anatomical structures on heart model and sheep heart
- Continue Heart anatomy
- Identifying ECG waves and identifying abnormal ECG; location of heart sounds
- Blood Vessels , anatomical structure and identification of artery, vein, capillary
- Human Blood Vessels on torso and figures
- Blood Pressure Measurement
- Study of Cat Heart and Blood Vessels,
- Identifying Lymphatic tissue slides
- Respiratory Anatomical structures on models, figure, slides; Cat Respiratory anatomy
- Spirometer and Lung Function Test
- Digestive System anatomical structures on model and slides;
- Urinary Anatomical Structures on models, figures, slides
- Urinalysis and Reproductive System anatomical structures on model, figure and slides

Lecture Grading/Course Content which Demonstrates Student Achievement of Core Objectives:

Course Grade ***A: 90-100*** ***B: 80-89*** ***C: 70-79*** ***D: 60-69*** ***F: 0-59***

Activity	Percent of Final Grade
Lecture Exams	40%
Final Exam	20%
Assignment	15%
Quizzes	15%
Project (Written and Oral)	10%
Total	100%

Lab Grading/Course Content which Demonstrates Student Achievement of Core Objectives:

Course Grade ***A: 90-100*** ***B: 80-89*** ***C: 70-79*** ***D: 60-69*** ***F: 0-59***

Summary of Course Exams, Quizzes, Activities, and Final	
4 Lab Quizzes (25pts/quiz)	100pts
Mid Term Lab Exam	100 pts
Final Lab Exam	100 pts
Project	50 pts
Lab Report	50 pts
Total	400 pts