COLLEGEWIDE COURSE OUTLINE OF RECORD

RESP 103, CARDIOPULMONARY ANATOMY AND PHYSIOLOGY

COURSE TITLE: Cardiopulmonary Anatomy and Physiology
COURSE NUMBER: RESP 103
PREREQUISITES: APHY 102 Anatomy and Physiology II
SCHOOL: Health Sciences
PROGRAM: Respiratory Therapy
CREDIT HOURS: 3
CONTACT HOURS: Lecture: 3
DATE OF LAST REVISION: Fall, 2018
EFFECTIVE DATE OF THIS REVISION: Spring, 2020

CATALOG DESCRIPTION: Presents the cardiopulmonary system including ventilation, perfusion, and gas exchange; introduces interpretation and application of arterial blood gases, acid-base regulation, hemodynamics and aging. Reviews the basic principles of physics as it relates to the respiratory system.

MAJOR COURSE LEARNING OBJECTIVES from 2020 NBRC Matrix: Upon successful completion of this course the student will be expected to:

1. Identify the detailed anatomy and describe the physiology of the upper airway and lower airway, pulmonary parenchyma, heart, kidney, thoracic cage, and pleura
2. Discuss the mechanics of ventilations
    a. Positive versus negative pressure
    b. Transrepiratory pressure, transmural pressure, transpulmonary pressure, transthoracic pressure
    c. Compliance and resistance
3. Discuss the neural control of ventilation
4. Review the basic principles of physics relating to gas flow, gas transport, and the muscular efforts affecting ventilation and pulmonary function
    a. Pulmonary mechanics (V_T, V_E, VC, NIF, MEP)
    b. Gas Laws
5. Explain pulmonary diffusion and O2 and CO2 transport to and from the body cells and identify factors that can alter normal transport mechanisms
6. Arterial Blood Gases:
    a. Discuss pH regulation-CO_2 and Bicarbonate
    b. Evaluate and interpret data and results of arterial, capillary and mixed venous blood gas analysis in normal and disease states
    c. Interpret results of blood gases, hemoximetry (carboxyhemoglobin)
    d. Perform and evaluate cardiopulmonary calculations in order to gather clinical information, for example, PA-aO2, Ca-v02, CcO2, V_D/V_T
    e. Ensure Modifications are made to the Respiratory Care Plan based on patient response. Interpret results of blood gas analysis and hemoximetry

7. Hemodynamics:
    a. Evaluate data for hemodynamic results (BP, CVP, PAP, PCWP, CO, CI)
    b. Evaluate data in the patient record to include: Fluid Balance
    c. Recommend blood tests (hemoglobin, potassium)
    d. Discuss hemodynamics in relation to normal values
8. Discuss ventilation perfusion relationships
9. Explain the effects on ventilation due to aging
10. Explain the basic principles related to renal electrolyte regulation and fluid balance
    a. Discuss acid base balance as it relates to the kidneys

COURSE CONTENT: Topical areas of study include –

Respiratory/Cardiovascular Anatomy	Pulmonary mechanics
Ventilation	CO2 transport and acid base balance
Gas Diffusion	Circulatory system
Hemodynamic monitoring	Oxygen transport
Ventilation/Perfusion	Control of Ventilation
Renal System	Aging of the pulmonary system
Evaluations	

HOW TO ACCESS THE IVY TECH COMMUNITY COLLEGE LIBRARY:

The Ivy Tech Library is available to students' on- and off-campus, offering full text journals and books and other resources essential for course assignments. Go to http://www.ivytech.edu/library/ and choose the link for your campus.

ACADEMIC HONESTY STATEMENT:

The College is committed to academic integrity in all its practices. The faculty value intellectual integrity and a high standard of academic conduct. Activities that violate academic integrity undermine the quality and diminish the value of educational achievement.

Cheating on papers, tests or other academic works is a violation of College rules. No student shall engage in behavior that, in the judgment of the instructor of the class, may be construed as cheating. This may include, but is not limited to, plagiarism or other forms of academic dishonesty such as the acquisition without permission of tests or other academic materials and/or distribution of these materials and other academic work. This includes students who aid and abet as well as those who attempt such behavior.

ATTENDANCE:

Students are expected to attend and participate regularly in class meetings, online learning activities and other activities assigned as a part of a course of instruction. Faculty are required to report student participation in compliance with institutional policies and federal financial aid guidelines. Faculty and staff shall be sensitive to students' religious beliefs and observances, including an expectation that instructors make reasonable arrangements when a student must

miss an exam or other academic exercise due to their religious observance. When notified in advance, and when possible, faculty will make allowances for students to make up missed work.

COPYRIGHT STATEMENT:

Students shall adhere to the laws governing the use of copyrighted materials. They must insure that their activities comply with fair use and in no way infringe on the copyright or other proprietary rights of others and that the materials used and developed at Ivy Tech Community College contain nothing unlawful, unethical, or libelous and do not constitute any violation of any right of privacy.

ADA STATEMENT:

Ivy Tech Community College seeks to provide reasonable accommodations for qualified individuals with documented disabilities. If you need an accommodation because of a documented disability, please contact the Office of Disability Support Services.

If you will require assistance during an emergency evacuation, notify your instructor immediately. Look for evacuation procedures posted in your classroom.

TITLE IX STATEMENT:

Ivy Tech Community College is committed to providing all members of the College community with a learning and work environment free from sexual harassment and assault. Ivy Tech students have options for getting help if they have experienced sexual assault, relationship violence, sexual harassment or stalking. This information can be found at https://www.ivytech.edu/prevent-sexual-violence/index.html.

If students write or speak about having survived sexual violence, including rape, sexual assault, dating violence, domestic violence, or stalking, federal law and Ivy Tech policies require that instructors share this information with the Campus Title IX Coordinator. The Campus Title IX Coordinator will contact students to let them know about accommodations and support services at the College and in the community as well as options for holding accountable the person who harmed them. When contacted, students are not required to speak with the Campus Title IX Coordinator.

If students do not want the Title IX Coordinator notified, instead of disclosing this information to their instructor, students can speak confidentially with certain individuals at the College or in the community. A list of these individuals can be found at https://www.ivytech.edu/prevent-sexual-violence/index.html under Confidential Employees and/or Community Resources.