

Outline of Instruction

Division:	Health Sciences	Area:	Respiratory Therapy
Course Number:	RTH 212	Course Name:	Advanced Cardiopulmonary Anatomy & Physiology
Prerequisite:	RTH 120 - Respiratory Care Techniques III		
Corequisite:			
Hours Required:	Class: 60	Lab: 0	Credits: 4

Course Description/Purpose

This course advances the student's knowledge of cardiopulmonary physiology. The cardiac sections cover gross and histologic cardiovascular anatomy, neural/endocrinological control of cardiac function, hemodynamics, microcirculatory disorders, and a review of common cardiac arrhythmias. The pulmonary section covers bronchopulmonary anatomy, gas diffusion, blood flow, ventilation/perfusion relationships, gas transport, mechanics and control of ventilation, and lung responses to changing environments and conditions.

Major Units

1. Cardiovascular Anatomy/Physiology
2. Hemodynamic Assessment & Cardiovascular Pathologies I
3. Cardiovascular Pathologies II & Renal Physiology/
4. Pulmonary Anatomy
5. Pulmonary Ventilation
6. Pulmonary Perfusion & Gas Exchange I
7. Gas Exchange II, Blood Acid-Base Physiology, & Control of Breathing

Educational/Course Outcomes RTH 212

Student learning will be assessed by a variety of methods, including, but not limited to, quizzes and tests, homework assignments, and instructor observations.

Cognitive

Each student will be expected to:

- describe the anatomic structures of the cardiac and renal system and describe the influence of these systems on respiratory function.
- state normal values for common clinical hemodynamic parameters.
- identify common cardiovascular disorders using assessment of hemodynamic data.
- identify the lymphatic and neural components of the pulmonary system.
- compare and contrast pulmonary to systemic vasculature.
- describe ventilation in terms of dynamic and static properties and normal distribution of ventilation.
- outline the components of gas exchange between the intra-alveolar and intracellular environments.
- identify and label blood acid-base disorders.
- describe neural and humoral components of respiratory regulation.

Performance

Each student will be expected to:

- use mathematical formula to derive hemodynamic values.
- apply mathematical formula describing the inter-relationships between blood pH, PaCO₂, and HCO₃⁻ values.
- apply mathematical formula relating normal and mechanical ventilation to acid-base conditions.