STANDARD COURSE OUTLINE

RESP 2103 **Cardiopulmonary A & P**

PREREQUISITE: Admission into the Respiratory Therapy (RT) Program.

COURSE DESCRIPTION: This course focuses on the anatomy and physiology of the cardiopulmonary system. Emphasis will be placed on the mechanics of ventilation, acid-base balance, gas exchange and transport, ventilation-perfusion, and control of the cardiovascular system, and control of breathing.

CREDIT HOURS: 3 credit hours / may transfer to other respiratory therapy programs.

TARGET AUDIENCE: Students admitted to the RT Program.

RESOURCE MATERIAL: Egan's Fundamentals of Respiratory Care
Wilkins, 8th Edition, 2003 Mosby

COURSE OBJECTIVES:

Upon successful completion of this course, the student will

1. Have a comprehensive understanding of ventilation
   A. Pulmonary mechanics
      [(NBRC Combined Examination Matrix (CEM) I-A-7-a)]
   B. Pulmonary compliance, airways resistance, work of breathing
      (CEM I-A-7-c)
2. Have a comprehensive understanding of pulmonary gas exchange and transport
3. Have a comprehensive understanding of ventilation-perfusion relationships
4. Have a comprehensive understanding of how the cardiovascular system is controlled.
5. Have a basic understanding of how fluids and electrolytes affect the cardiovascular system
6. Have a comprehensive understanding of acid-base balance
7. Have a comprehensive understanding of the regulation of breathing
8. Have a basic understanding of the cardiopulmonary response to exercise in health, disease, and aging

TOPICAL OUTLINE:

This course includes (but is not limited to) the following topics:

Module 1: Ventilation
- A. Mechanics of ventilation
- B. Work of breathing
- C. Distribution of ventilation

Module 2: Gas Exchange and Transport
- A. Diffusion
- B. Normal variations from ideal gas exchange
- C. Oxygen transport
- D. Carbon dioxide transport
- E. Abnormalities of gas exchange and transport

Module 3: Acid-Base Balance and Regulation of Breathing
- A. Hydrogen ion regulation
- B. Acid excretion
- C. Acid-base disturbances
- D. Clinical acid-base status
- E. Medullary respiratory center
- F. Pontine respiratory center
- G. Reflex control of breathing
- H. Chemical control of breathing
- I. Ventilatory response to exercise
- J. Abnormal breathing patterns
- K. Effect of carbon dioxide on cerebral blood flow

Module 4: Control of the Cardiovascular System
- A. Regulation of peripheral vasculature
- B. Regulation of cardiac output
- C. Cardiovascular control mechanisms

Module 5: Solutions, Body Fluids, and Electrolytes
- A. Solutions
- B. Electrolytic activity
- C. Body fluids and electrolytes