

LABETTE COMMUNITY COLLEGE BRIEF SYLLABUS

SPECIAL NOTE:

This brief syllabus is not intended to be a legal contract. A full syllabus will be distributed to students at the first class session.

TEXT AND SUPPLEMENTARY MATERIALS USED IN THE COURSE (if any):

Please check with the LCC bookstore <http://www.labette.edu/bookstore> for the required texts for this class.

COURSE NUMBER: RESP 107

COURSE TITLE: CARDIOPULMONARY ANATOMY
AND PHYSIOLOGY I

SEMESTER CREDIT HOURS: 2

DEPARTMENT: Respiratory Therapy

DIVISION: Health Science

PREQUISITE: Admission to the Program

COURSE DESCRIPTION:

An in-depth study of cardiopulmonary anatomy and physiology will be presented. Units on renal physiology and acid base balance are included.

COURSE OUTCOMES AND COMPETENCIES:

Students who successfully complete this course will be able to:

1. Identify normal anatomy and physiology of the pulmonary system.

- Identify the function of the structures of the upper airway.
- Identify the function of the structures of the lower airway.
- Identify the function of the structures of the respiratory zone.
- Identify the structures of the thorax.
- Differentiate and discuss the significance of the histological differences found in the pulmonary system.
- Explain the role of lymphatic system in pulmonary function.
- Explain the role of the structures of respiratory zone in lung function.

2. Demonstrate a complete understanding of the mechanics of ventilation.

- Differentiate between ventilation and respiration.
- Discuss role of lung compliance, elastance, and airway resistance on work of breathing.
- Apply concepts of gas laws to explain the mechanics of ventilation.
- Apply concepts of pressure gradients to explain mechanics of ventilation.
- Analyze the role of the thorax in the mechanics of ventilation.
- Analyze the role of the pleural lining in the mechanics of ventilation.

3. Demonstrate a complete understanding of blood gas transport.

- Apply concepts of gas laws to explain blood gas transport.
- Discuss the role of hemoglobin in the transport of blood gases.
- Identify the means by which blood gases are transported in the body.
- Identify factors that influence the transport of blood gases in the body.
- Perform calculations that pertain to transport of blood gases.
- Analyze and apply data obtained regarding blood gas transport.

4. Demonstrate a complete understanding of diffusion of blood gases at the pulmonary and cellular level.

- Identify the components of the alveolar capillary membrane.
- Apply concepts of gas laws to explain movement of gases in and out of blood.
- Discuss the role of pressure gradients in the movement of blood gases in and out of blood.
- Discuss mechanisms that influence the movement of blood gases in and out of the blood.
- Perform calculations that pertain to the diffusion of blood gases.
- Analyze and apply data obtained regarding diffusion of blood gases.

5. Demonstrate a complete understanding of the neural control of ventilation.

- Describe neural control of ventilation.
- Describe abnormal breathing patterns and possible causes.
- Identify pathology that may affect the neural control of ventilation.
- Given a situation, describe the possible impact on ventilatory control in the body.
- Describe the impact of normal ventilatory reflexes on control of ventilation.

6. Identify normal anatomy and physiology of the cardiovascular system.

- Identify normal structures of the cardiovascular system.
- Identify function of the structures of the cardiovascular system.
- Discuss possible consequences of failure of cardiovascular system to function normally.
- Discuss the regulatory components of cardiac and vascular function and apply to given situations.
- Trace the normal blood flow through the body.
- Compare and contrast systemic and pulmonary circulation.

7. Competently discuss the anatomy and physiology of the renal system and how it applies to the cardiopulmonary system.

- Identify the components of the renal system that influence acid-base balance.
- Identify components of the renal system that influence cardiovascular performance.
- Analyze the role of the renal system in maintaining acid-base balance.
- Given a situation, predict normal renal response.

8. Competently discuss acid-base balance in the body.

- Describe the role of the pulmonary system in maintaining acid-base balance.
- Describe the role of the renal system in maintaining acid-base balance.
- Critically analyze failure of the pulmonary or renal system in maintaining acid-base balance: compensatory mechanisms, physiological effects, metabolic consequences.

9. Complete this class will be able to competently discuss the role of oxygen in cellular physiology.

- Differentiate between hypoxemia and hypoxia.
- Identify consequences of anaerobic metabolism.
- Describe factors that contribute to cellular hypoxia.
- Describe the role of oxygen in normal cellular physiology.