

**J. Sargeant Reynolds Community College
Course Content Summary**

Course Prefix and Number: PSG 295

Credits: 4

Course Title: Anatomy and Physiology of Sleep Disorders

Course Description (including lecture hours, lab hours, total contacts)

Provides a concentrated study of anatomy and physiology essential to the practice of polysomnography. Presents the physiology of the nervous, cardiovascular and pulmonary system as well as basic pharmacological principles and explores the pathophysiologic differences between adult and pediatric sleep disorders. Prerequisites: PSG 101, 190, and 195 (Introduction to Sleep). Lecture 4 hours per week.

General Course Purpose

Provides students with a foundation and an understanding of human anatomy and physiology, which is required to recognize the changes that take place within the body during normal sleep and sleep disorders.

Course Prerequisites/Corequisites (*Entry-level competencies **required** for enrollment*)

Prerequisites: PSG 101, 190, and 195 (Introduction to Sleep)

Course Objectives (Each item should complete the following sentence.)

Upon completing the course, the student will be able to:

1. Relate anatomical structures of the respiratory system to their functions
2. Discuss the processes of ventilation, the diffusion of pulmonary gases, and measurements made to determine the effectiveness of ventilation
3. Explain the process of circulation and measurements made to determine the effectiveness of the heart as a pump
4. Discuss oxygen and carbon dioxide transport, and analyze acid-base balance.
5. Describe how ventilation/perfusion relationships affect gas exchange
6. Describe how ventilation is controlled
7. Identify main components of an ECG
8. Understand the importance of basic ECG recognition for sleep technologists.
9. List the major risk factors for SRBD in children
10. Explain the pathophysiology of pediatric SRBD; and
11. Describe and discuss the neurobehavioral consequences and most common treatment modalities for pediatric SRBD.

Major Topics to be Included

- I. The Anatomy of the Respiratory System
 - A. The Upper Airway
 - B. The Lower Airways
 - C. The Sites of Gas Exchange
 - D. Pulmonary Vascular System
 - E. The Lymphatic System
 - F. Neural Control of the Lungs
 - G. The Lungs, Mediastinum, Pleural Membranes, and Thorax

- II. The Circulatory System
 - A. Blood
 - B. The Heart
 - C. The Pulmonary and Systemic Vascular Systems
 - D. The Cardiac Cycle-ECG patterns
 - E. The Distribution of Pulmonary Blood Flow
 - F. Determinants of Cardiac Output

- III. Oxygen and Carbon Dioxide Transport
 - A. Oxygen Transport and Studies
 - B. Oxygen Dissociation Curve
 - C. Tissue Hypoxia, Cyanosis, and Polycythemia
 - D. Carbon Dioxide Transport
 - E. Acid-Base Balance

- IV. Control of Ventilation
 - A. Ventilation – Perfusion Relationships
 - B. The Respiratory Components of the Medulla
 - C. Monitoring Systems that Influence the Respiratory Components of the Medulla
 - D. Reflexes that Influence Ventilation

- V. Pediatric Sleep Disorders

Effective Date of Course Content Summary (Month, Date Year): August 2010