Course Outline

2026-2027 Catalog

RT 110 - Fundamentals of Respiratory Care

Catalog Description

Transfer Status: NT

Prerequisite: Admission to the RT Program, ALH 6 (or concurrent enrollment)

Corequisite: RT 118

Unit(s): 7.00

Lecture: 102.00 Contact hours/204.00 Out of class hours/306.00 Total hours/6.00 Unit(s)

Lab: 51.00 Contact hours/0.00 Out of class hours/51.00 Total hours/1.00 Unit(s)

Total: 153.00 Contact hours/204.00 Out of class hours/357.00 Total hours/7.00 Unit(s)

Course Description: This course is designed to introduce the student to basic atmospheric physics, cardiopulmonary anatomy and physiology, blood gas chemistry, and ventilatory dynamics. The student will be introduced to basic concepts of health and disease with emphasis on cardiopulmonary disorders, fundamentals of problem solving techniques and safe handling of medical gases and equipment. Selected respiratory care and diagnostic equipment, techniques and problems will be introduced in the laboratory. Graded only.

Objectives

Upon successful completion of this course, the student should be able to:

1. Identify the composition and behavior of the atmosphere as it relates to the physiology of human respiration.
2. Identify the structures and functions of the human cardiopulmonary system.
3. Demonstrate skills in basic clinical therapeutic and diagnostic problem solving.
4. Demonstrate the proper use of medical equipment and devices routinely used in the diagnosis and care of patients with cardiopulmonary disease.
5. Identify the basic signs and symptoms of cardiopulmonary disease.
6. Identify aging and its effects on the cardiopulmonary system.

Course Content

Topic Titles / Suggested Time Topic

Lecture

Topics	Lec Hrs
Atmospheric Physics	14.00
Anatomy of the Respiratory System	20.00
Ventilation	10.00
Diffusion of Pulmonary Gases	10.00
Pulmonary Function Measurement	12.00
Circulatory System	10.00
O2 Transport and Acid-Base Balance	10.00
Ventilation-Perfusion Relationships	6.00
Control of Ventilation	6.00
Renal Failure and its Effects on the Cardiopulmonary System	2.00
Aging and its Effects on the Cardiopulmonary System	2.00
Total Hours:	**102.00**

Lab

Topics	Lab Hrs
Medical Gases and Oxygen Supply Systems	12.00
Incentive Spirometry and Pulse Oximetry	3.00
Medical Gas Therapy and Delivery Devices	9.00
Humidity Therapy	3.00
Aerosol Therapy	12.00
Asepsis and Decontamination	3.00
Blood pressure measurement	6.00
Patient interview	3.00
Total Hours:	**51.00**

Methods of Instruction

A. Class Activities
B. Collaborative Group Work
C. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
D. Instructor Demonstrations
E. Laboratory Experiments
F. Lecture

Methods of Evaluation

A. Exams/Tests
B. Quizzes
C. Homework
D. Class participation
E. Lab Projects
F. Written Assignments
G. Mid-term and final examinations

Examples of Assignments

Reading Assignments

1. Read the assigned, required readings for Atmospheric Physics. Be prepared to discuss and solve Gas Law problems.
2. Read the assigned, required reading for Anatomy of the Respiratory System. Be prepared to contribute to classroom discussion on the topic.

Writing Assignments

1. After completing the assigned reading and classroom presentations on Pulmonary Function, complete the handout on identifying lung volumes.
2. After completing the assigned reading and classroom presentations on Anatomy of the Respiratory System, answer each item listed under the Anatomy of the Respiratory System Learning Objectives.

Out-of-Class Assignments

1. Review the handouts on the 4 Gas Laws discussed in class and solve the assigned Gas Law problems.
2. Review the handouts on the Alveolar Air equation, and the Oxygen Content equation and solve the assigned problems for each equation.

Recommended Materials of Instruction

Cairo, J.M. (2018). Mosby's Respiratory Care Equipment. *Mosby, 10th.*

Des Jardins, T. (2019). Cardiopulmonary Anatomy & Physiology: The Essentials for Respiratory Care. *Cengage Learning, 7th.*

Scanlan CL, Spearman CB, Sheldon, RL. (2020). Sheldon, RL. Egan's Fundamentals of Respiratory Care. *Mosby, 12th.*

Other Learning Materials

American Association for Respiratory Care, Clinical Practice Guidelines, current editions on Web

Selected references from medical periodicals

Minimum Qualifications

Respiratory Technician

Respiratory Technologies

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