

**SOUTHEAST COMMUNITY COLLEGE
HEALTH SCIENCES DIVISION
RESPIRATORY CARE
Revision Date: 11/2025**

I. CATALOG DESCRIPTION

Course Number: RESP 1150
Course Title Respiratory Pharmacology/Pathology
Prerequisite(s) Admission to the Program

Catalog Description: Study of concepts and theory of basic pulmonary diseases including: etiology, pathology, diagnosis, clinical manifestations, radiological and laboratory findings, prevention, prognosis and treatment. Study of drugs affecting the respiratory system. Including drug calculations, administration and clinical side effects.

Credit Hours: 5
Class Hours: 75
Lab Hours: 0
Total Contact Hours: 75

II. COURSE OBJECTIVES: *Course will:*

1. Identify normal lab values and the relevance to disease process.
2. Identify normal vs abnormal findings on chest x-rays.
3. Identify signs and symptoms including breath sounds related to disease process.
4. Describe etiology, pathology, pathophysiology, signs, symptoms, clinical manifestation, diagnosis, complication and management of pulmonary diseases.
5. Complete a respiratory care assessment plan on a given pulmonary disease.
6. Differentiate between infectious, obstructive, restrictive diseases; respiratory failure; atelectasis; and pulmonary circulatory disease.
7. Detail the general history of pharmacology.
8. Explain drug dosage calculation equations.
9. Compare and contrast the parasympathetic and sympathetic nervous systems.
10. Detail the following drug classes: bronchodilators, mucolytics, and corticosteroids.
11. Determine which drug groups are used to treat specific pulmonary diseases.
12. Describe pulmonary drugs, including: indications, benefit, risks and patient education.
13. Define key terms related to pharmacology.

Note: Unit objectives are located in the learning management system within each unit of study.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

A. STUDENT LEARNING OUTCOMES: *Student will be able to:*

1. Identify pulmonary disease processes based on a review of patient clinical data.
2. Understand the relationship of pathophysiology changes caused by pulmonary disease, presentation of signs and symptoms.

3. Recognize drug standards and its legislation.
4. Given an adult, pediatric and neonatal drug scenario, be able to calculate accurately the drug dose for administration.
5. Identify the following for bronchodilators, mucolytics, and corticosteroids: indication, hazard/side effect, dosage, frequency, route of delivery, time of drug onset, duration, generic and brand name and classification.
6. Define key terms related to pharmacology.
7. Choose appropriate drugs for a given patient scenario.

B. GENERAL EDUCATION LEARNING OUTCOMES

GELO 3: Critical Thinking & Problem Solving:

Outcome:

1. Collect, identify, interpret and analyze data.
2. Synthesize information to arrive at reasoned solutions to problems.

IV. CONTENT/TOPICAL OUTLINE (*Course outline may provide more detailed information*)

A. PATIENT CARE BASICS

1. Lab Values
2. Chest X-rays
3. Signs and Symptoms
4. Breath Sounds

B. OBSTRUCTIVE AIRWAY DISEASE

1. Chronic Bronchitis
2. Emphysema
3. Asthma
4. Bronchiectasis

C. INFECTIOUS PULMONARY DISEASES

1. Pneumonia
2. Lung Abscess
3. Tuberculosis
4. Laryngotracheobronchitis
5. Epiglottitis

D. PULMONARY VASCULAR DISEASE

1. Pulmonary Embolism and Infarction
2. Pulmonary Edema

E. DIFFUSE ALVEOLAR DISEASE

1. ALI/ARDS

F. CHEST AND PLEURAL TRAUMA

1. Flail Chest
2. Pneumothorax

G. DISORDERS OF PLEURA AND CHEST WALL

1. Pleural Diseases
2. Kyphoscoliosis

H. NEOPLASTIC DISORDERS

1. Lung Cancer

I. NEUROLOGIC DISORDERS

1. Guillain Barre Syndrome
2. Myasthenia Gravis

J. SLEEP APNEA

K. POSTOPERATIVE COMPLICATIONS

L. MISCELLANEOUS

1. Fungal Disease of the Lung
2. Pneumoconiosis
3. Chronic Interstitial Lung Disease
4. Childhood illnesses

M. GENERAL PRINCIPLES OF PHARMACOLOGY

1. Fundamental Terms
2. Source of Drug Information
3. Process of Drug Approval in the U.S.

N. PRINCIPLES OF DRUG ACTION

1. Drug Administration Phase
2. Pharmacokinetic Phase
3. Pharmacodynamic Phase
4. Pharmacogenetics

O. CALCULATING DRUG DOSAGE

1. System of Measurement
2. Calculating Dosages from Prepared Strength, Liquids, Tablets and Capsules

P. CENTRAL AND PERIPHERAL NERVOUS SYSTEM

1. Organization of the Nervous System
2. Autonomic Nervous System
3. Sympathetic and Parasympathetic Branch
4. Autonomic Control in the Lung

Q. SYMPATHOMIMETIC AND PARASYMPATHOLYTIC BRONCHODILATORS

1. History and Development
2. Structure – Activity Relations
3. Mode of Action
4. Specific Agents
5. Clinical Application Routes of Administration
6. Adverse Side Effects

R. XANTHINES

1. Identification
2. General Pharmacologic Properties
3. Clinical Use
4. Mode of Action
5. Toxicity and Side Effects

P. MUCUS-CONTROLLING AGENTS

1. Nature of Mucus Secretions
2. Specific Agents
3. Clinical Application
4. Mode of Action
5. Adverse Side Effects
6. Routes of Administration

S. CORTICOSTEROIDS

1. Physiologic Characteristics of Corticosteroids
2. Nature of Inflammatory Response
3. Pharmacologic Properties of Corticosteroids
4. Hazards and Side Effects of Corticosteroids
5. Clinical Application

6. Mode of Action
7. Routes of Administration

V. INSTRUCTIONAL MATERIALS

A. Required Text(s):

Terry Des Jardins, George G. Burton, *Clinical Manifestations and Assessment of Respiratory Disease* (current edition). Mosby

Gardenhire, Douglas, Harwood, Robert, *Rau's Respiratory Care Pharmacology* (current edition). Mosby

Butler, Thomas J., *Laboratory Exercises for Competency in Respiratory Care* (current edition).

Kacmarek, Robert M.; Stoller, James K.; Heuer, Albert J, *Egan's Fundamentals of Respiratory Care* (current edition). Mosby

B. Other Resources:

Various websites, Handouts, PowerPoints

VI. METHODS OF PRESENTATION/INSTRUCTION

A. Methods of presentation typically include a combination of the following:

1. PowerPoint
2. Discussion
3. Case Studies
4. Projects

VII. METHODS OF EVALUATION

A. Methods of evaluation typically include:

A combination of assignments, quizzes, exam, projects, skill checkoffs, etc. For grading expectations please see the course information document.

SCC STANDARD GRADING SCALE POLICY:

A+	95-100	C+	75-79
A	90-94	C	70-74
B+	85-89	D+	65-69
B	80-84	D	60-64
		F	Below 60

VIII. SPECIFIC COURSE REQUIREMENTS:

A. ATTENDANCE

Attendance is crucial to the success of this course. Any class missed could mean valuable missed information, which is difficult to obtain. Please notify the instructor of any pending absences or if you will be late. Absences in excess of four hours may result in failing the course.

B. Must pass all Respiratory Care program courses with a C+ to progress to the next term.

Please see course information document for course policies related to grading, expectations, assignments, assessments, and participation