



El Camino College
COURSE OUTLINE OF RECORD – Official

Course Acronym:	RC
Course Number:	172
Descriptive Title:	Fundamentals of Cardiopulmonary Physiology and Pharmacology in Respiratory Care
Division:	Health Sciences and Athletics
Department:	Respiratory Care
Course Disciplines:	Respiratory Technologies
Catalog Description:	This course will cover the fundamental cardiopulmonary anatomy, physiology and pharmacology required for entry-level practice in the Respiratory Care profession. In addition, emphasis will be placed on the achievement and maintenance of bronchial hygiene in patients with respiratory disorders through the use of airway care, aerosols, and chest physiotherapy.
Prerequisite:	Anatomy 30 with a minimum grade of C or concurrent enrollment
Co-requisite:	
Recommended Preparation:	Respiratory Care 170 or concurrent enrollment
Enrollment Limitation:	
Hours Lecture (per week):	3
Hours Laboratory (per week):	0
Outside Study Hours:	6
Total Course Hours:	54
Course Units:	3
Grading Method:	Letter Grade only
Credit Status:	Credit, degree applicable
Transfer CSU:	Yes
Effective Date:	Pending
Transfer UC:	No
Effective Date:	
General Education: ECC	
Term:	
Other:	
CSU GE:	
Term:	
Other:	

	IGETC:
	Term:
	Other:
Student Learning Outcomes:	<p>SLO #1 Appropriate and Competent FIO2 Management</p> <p>Given an in-class patient care scenario during an oral examination based on assigned reading, demonstrate appropriate and competent FIO2 management using guidelines set in clinical competencies section of the Data Arc system for clinical practice.</p> <p>SLO #2 Demonstrate RC Competencies</p> <p>During classes & labs, students will demonstrate and explain appropriate respiratory care competencies such as FIO2 monitoring and managing patients receiving prolonged artificial ventilation, pulmonary rehabilitation, life support procedures, bronchial hygiene and oxygen therapy.</p> <p>SLO #3 Comprehensive Final Exam on Physiology & Pharmacology</p> <p>Students who stay in the course till the end of semester will take a comprehensive final multiple choice examination and 80% will obtain a grade of 70% or better.</p>
Course Objectives:	<ol style="list-style-type: none"> 1. Identify the basic function of the cardiopulmonary system as it relates to respiratory care. 2. Identify dysfunction in the cardiopulmonary system when providing various respiratory care therapies and drugs. 3. Evaluate the respiratory care order and patient data to determine the appropriate action to take or recommend with respect to the cardiopulmonary system and/or pharmacological agents. 4. Identify bronchial hygiene problems and recommend appropriate drugs and procedures. 5. Calculate percentages, ratios and dosages of drugs prescribed for the cardiopulmonary system in respiratory care.
Major Topics:	<p>I. Drugs Used in Respiratory Care to Treat Cardio-Pulmonary Disorders (12 hours, lecture)</p> <ol style="list-style-type: none"> A. Bronchodilators <ol style="list-style-type: none"> 1. Indications 2. Contraindications 3. Hazards B. Anti-asthmatics <ol style="list-style-type: none"> 1. Indications 2. Contraindications 3. Hazards C. Other categories <p>II. Drug Dosage Math in Respiratory Care (6 hours, lecture)</p> <ol style="list-style-type: none"> A. Percentage B. Dosage calculations

	<p>III. Bronchial Hygiene Issues and Associated Respiratory drugs (6 hours, lecture)</p> <p>A. Usage of Acetylcysteine</p> <ol style="list-style-type: none"> 1. When treating cystic fibrosis 2. Other related diseases <p>IV. Bronchial Hygiene Issues (6 hours, lecture)</p> <p>A. Recommended non-drug therapies</p> <p>B. Chest physical therapy when treating pneumonia</p> <p>V. Basic function of the Cardiopulmonary system (6 hours, lecture)</p> <p>A. Anatomy of breathing</p> <p>B. Physiology of cellular gas exchange</p> <p>VI. Dysfunction of the Cardiopulmonary system (6 hours, lecture)</p> <p>A. Hyperreactivity of the airways</p> <p>B. Coronary artery disease</p> <p>C. Affects on pulmonary gas exchange</p> <p>VII. Normal and abnormal cardiac rhythms (12 hours, lecture)</p> <p>A. P-waves</p> <p>B. QRS complexes</p> <p>C. Normal sinus rhythms</p> <p>D. Atrial fibrillation</p> <p>E. Ventricular tachycardia</p>
Total Lecture Hours:	54
Total Laboratory Hours:	0
Total Hours:	54
Primary Method of Evaluation:	2) Problem solving demonstrations (computational or non-computational)
Typical Assignment Using Primary Method of Evaluation:	Please list the anatomical structures associated with the acinus in the lungs and explain how normal gas exchange is affected by pulmonary fibrotic disease through the alveolar capillary membrane using gas laws and diffusion principles to explain.
Critical Thinking Assignment 1:	Look at the cardiac monitor. Given what you know about the patient, what arrhythmias does this patient have and what drug or procedure would you recommend?
Critical Thinking Assignment 2:	Review the asthmatic patient scenario, identifying the signs and symptoms of respiratory distress. In addition, be prepared to verbally explain, or select from a list, the significance of each sign.
Other Evaluation Methods:	Class Performance, Completion, Fieldwork, Homework Problems, Laboratory Reports, Matching Items, Multiple Choice, Objective Exam, Performance Exams, Quizzes, Term or Other Papers, True/False, Written Homework

Instructional Methods:	Demonstration, Discussion, Group Activities, Guest Speakers, Lab, Lecture, Multimedia presentations, Role play/simulation
If other:	Group active learning assignments simulating clinical situations that require information collection and decision making in order to solve patient problem and determine course of therapy.
Work Outside of Class:	Answer questions, Observation of or participation in an activity related to course content (such as theatre event, museum, concert, debate, meeting), Problem solving activity, Required reading, Skill practice, Study, Written work (such as essay/composition/report/analysis/research)
If Other:	Group active learning assignments simulating clinical situations that require information collection and decision making in order to solve patient problem and determine course of therapy.
Up-To-Date Representative Textbooks:	Kacmarek, Stoller, and Heuer. <u>Egan's Fundamentals of Respiratory Care</u> , 12th edition, Elsevier, 2019.
Alternative Textbooks:	
Required Supplementary Readings:	
Other Required Materials:	
Requisite:	Prerequisite
Category:	
Requisite course(s): List both prerequisites and corequisites in this box.	Anatomy-30
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	<p>An understanding of the essential structure and functional processes of body systems that interact to produce normal body function or homeostasis.</p> <p>ANAT 30 -Demonstrate an understanding of the physiology of each system and how each system interacts to maintain homeostasis.</p> <p>A foundation in the fundamentals of anatomy and physiology that prepares the allied health sciences major for advanced and upper division courses.</p> <p>ANAT 30 -Identify all major anatomical structures for each major system, including integumentary, skeletal, muscular, nervous, special senses, endocrine, digestive, cardiovascular, respiratory, urinary and reproductive systems.</p> <p>ANAT 30 -Demonstrate an understanding of the physiology of each system and how each system interacts to maintain homeostasis.</p>
Requisite Skill:	
Requisite Skill and Matching Skill(s): Bold the requisite skill(s). If applicable	
Requisite course:	Respiratory Care-170

Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	Understanding therapeutic modalities used in basic treatment of physiological abnormalities RC 170 -Match respiratory care problems with the appropriate science concept, law, formula or principle needed to understand or solve the problem. RC 170 -Select appropriate actions to take given a life-threatening emergency situation involving cardiopulmonary arrest according to BCLS protocol.
Requisite Skill:	
Requisite Skill and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). If applicable	
Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	Louis M. Sinopoli
Date:	07/30/2015
Original Board Approval Date:	12/01/1990
Last Reviewed and/or Revised by:	Roy Mekarua
Date:	03/18/2023
Last Board Approval Date:	07/17/2023 effective FALL 2024