

Basic Respiratory Pharmacology (RSPT 1113)

Credit: 1 semester credit hours (1 hour lecture, 1 hour lab)

Prerequisite: RSPT 1201

Co-requisite: RSPT 1329, RSPT 1207, RSPT 2310, RSPT 1325



Course Description:

A study of basic pharmacological principles/practices of respiratory care drugs. Emphasis on classification, routes of administration, dosages/calculations, and physiological interaction.

Required Textbook and Materials

1. Egan's Fundamentals of Respiratory Care (ISBN # 978-0-323-03657-3)
2. Egan's Fundamentals of Respiratory Care Workbook (ISBN # 978-0-323-05188-0)
3. Integrated Cardiopulmonary Pharmacology- by Colbert and Mason- second Edition (ISBN# 978-0-13-228541-4)
4. Web based: www.aarc.org
Clinical Practice guidelines:
Assessing Response to Bronchodilator Therapy at point of care
Selection of Device for Delivery of aerosol to the Lung Parenchyma
Delivery of Aerosol to upper airway
5. A package of #882 Scantrons and #2 pencils

Course Objectives

Upon completion of this course the student will be able to: Explain the mode of action, clinical indications, dosages, hazards, and side effects of respiratory care drugs; calculate drug dosages; and select optimal drugs used in the practice of respiratory care.

The student will be able to:

1. Select appropriate medication and dosage to produce a desired patient outcome (SCANS: F3,F8,F9,C1,C5,C11,C16,C18,C19,C20)
2. Identify indications/ hazards/side effects for various cardiopulmonary medication (SCANS: F10,F12,F13,C5, C7)
3. Calculate proper drug dosage for various cardiopulmonary medications (SCANS: F3,F9,C5)
4. Identify/select/modify delivery device for various cardiopulmonary medications (SCANS: C16,C18,C19,C20)

SCANS Skills and Competencies

Beginning in the late 1980's, the U.S. Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS) conducted extensive research and interviews with business owners, union leaders, supervisors, and laborers in a wide variety of work settings to determine what knowledge workers needed in order to perform well on a job. In 1991 the Commission announced its findings in *What Work Requires in Schools*. In its

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research, the Commission determined that “workplace know-how” consists of two elements: foundation skills and workplace competencies. The three-part foundation skills and five-part workplace competences are further defined in the SCANS attachment

Course Outline

- I. Pharmacologic Principles
 - A. Basic terms
 - B. Interpreting drug information
 - C. Indications and usage
 - D. Contraindications
 - E. Drug interactions
 - F. Drug reactions
 - G. Dosage and administration
 - H. Routes of administration
 - I. Pharmacokinetics
 - J. Pharmacokinetics
 - K. Prescription orders
- II. Metric system and drug dosage calculations
 - A. Systems of measurements
 - B. Drug dosage calculations
- III. The Pharmacology of the Autonomic Nervous System
 - A. Nervous system divisions
 - B. Parasympathmimetics
 - C. Parasympatholytics
 - D. Sympathomimetics
 - E. Sympatolytics
- IV. Bronchodilators
 - A. Bronchoconstriction/bronchospasms
 - B. Neural control of smooth muscle
 - C. Sympathetic nervous system
 - D. Parasympathetic nervous system
 - E. Mechanism of action
 - F. Side effects
 - G. Classification of drugs by action/ duration
 - H. Sympathomimetics
 1. Generic and trade names
 2. Dosage and frequency
 3. Duration of action
 - I. Parasympatholytics
 1. Generic and trade names
 2. Dosage and frequency
 3. Duration of action
 - J. Xanthines
 1. Generic and trade names
 2. Dosage and frequency
 3. Duration of action

- 4. Therapeutic levels
- V. The Mucokinetic and Surfactants
 - A. The mucociliary system
 - B. Structure and composition
 - C. Agents
 - 1. Bland aerosols
 - a. Solution %
 - b. Response
 - 2. Mucolytics
 - a. Generic and trade names
 - b. Dosage and frequency
 - c. Actions
 - 3. Surface active agents
 - a. Function
 - b. Indications
 - c. Generic and trade names
 - d. Dosage and frequency
 - e. Delivery
- VI. The Anti-inflammatory and antiasthmatic agents
 - A. Inflammatory process
 - B. Physiology
 - C. Routes of administration
 - D. Corticosteroids
 - 1. Generic and trade names
 - 2. Dosage and frequency
 - 3. Actions
 - E. Antiasthmatics
 - 1. Generic and trade names
 - 2. Dosage and frequency
 - 3. Actions
 - F. Leukotriene Modifiers
 - 1. Actions
 - 2. Generic and trade names
 - 3. Dosage and frequency
 - G. Upper airway edema
 - 1. Drugs used to treat
- VII. Infectious Respiratory Disease
 - A. Bacteriostatic vs. Bactericidal
 - B. Upper vs lower airway infections
 - C. Antivirals
 - 1. Influenza
 - 2. Respiratory Syncytial
 - D. Antibacterial
 - E. Antifungal
 - F. Antiprotozoan

- VIII. Cardiac agents
 - A. Drugs used to treat
 - 1. Arrhythmias
 - 2. Heart failure
 - 3. Shock
 - 4. Angina
 - 5. Hypertension
 - 6. Hypotension
 - 7. Coagulation
- IX. Neuromuscular agents
 - A. Nerve transmission
 - B. Blocking drugs
 - 1. Depolarizing
 - 2. Non depolarizing
 - C. Muscle relaxants
 - D. Sedatives
 - E. Stimulants
 - F. Analgesics
- X. Medical gases
 - A. Uses of
 - B. Oxygen
 - C. Carbon dioxide
 - D. Helium
 - E. Nitric Oxide

Grade Scale

93 – 100	A
85 – 92	B
77 – 84	C
68 – 76	D
0 – 67	F

Course Evaluation

Final grades will be calculated according to the following criteria:

4 exams	95%
Homework assignments	5%

Course Requirements

1. Egan workbook Chapter 32- Airway Pharmacology

Course Policies

1. No food or drink, or use of tobacco products in class
2. Beepers, telephones, headphones, and other electronic devices must be turned off while in class
3. No children allowed in the classroom
4. No late assignments will be accepted
5. Abide by LIT policies
6. Abide by policies within the Respiratory Care Handbook
7. Abide by instructor specific policies; this will be distributed on the first class day.
8. Exam dates will be distributed the first class day.

Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building.

Course Schedule:

Week of	Topic	Required Reading
1	Chapter 1 – General Pharmacologic Principles	Integrated Cardiopulmonary Pharmacology- Chapter 1, Egan page 668-669
2	Chapter 2- The metric System and drug Dosage Calculations	Integrated Cardiopulmonary Pharmacology- Chapter 2
3	Chapter 3- Pharmacology of the ANS	Integrated Cardiopulmonary Pharmacology- Chapter 3
4	Exam #1/ Chapter 4- Medicated aerosol treatments	Integrated Cardiopulmonary Pharmacology-Chapter 4
5	Chapter 4- Medicated aerosol treatments/Chapter 5 Bronchodilators	Integrated Cardiopulmonary Pharmacology- Chapter 5, Egan page 670- 676
6	Chapter 5 Bronchodilators	Integrated Cardiopulmonary Pharmacology- Chapter 5
7	Chapter 5 Bronchodilators	Integrated Cardiopulmonary Pharmacology-Chapter 5
8	Exam #2/Chapter 6- Mucokinetics and surfactants	Integrated Cardiopulmonary Pharmacology- Chapter 6 , Egan page 677-680

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9	Chapter 6 -Mucokinetics and surfactants/ Chapter 7-	Integrated Cardiopulmonary Pharmacology- Chapter 6&7- Egan page 680-685
10	Chapter 7- Anti-inflammatory	Integrated Cardiopulmonary Pharmacology- Chapter 7
11	Chapter 7- AntiInflammatory/ Chapter 8 Anti-infective agents	Integrated Cardiopulmonary Pharmacology- Chapter 8- Egan page 685-689
12	Chapter 8 Anti- Infective agents	Integrated Cardiopulmonary Pharmacology- Chapter 8
13	Exam #3/ Chapter 9 and 10- Cardiac Drugs	Integrated Cardiopulmonary Pharmacology- Chapter 9 and 10
14	Chapter 9 and 10 Cardiac drugs	Integrated Cardiopulmonary Pharmacology- Chapter 9 and 10
15	Chapter 11-Neuromuscular, sedative, anesthetic and analgesics	Integrated Cardiopulmonary Pharmacology- Chapter 11
16	Chapter 12- Therapeutic gases	Integrated Cardiopulmonary Pharmacology- Chapter 12 , Egan page 690-691
Final Week	Exam #4	Egan homework chapter 32 due

Exact exam dates will be distributed on the first class day. This scheduled may be adjusted to facilitate student learning.

Contact Information:

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Office hours: Posted outside office. Additional times are available with appointment.