

Respiratory Care Fundamentals I (RSPT 1329)

Credit: 3 semester credit hours (2 hours lecture, 3 hours lab)

Prerequisite: RSPT 1201

Co-requisite: RSPT 1113, RSPT 1207, RSPT 2310, RSPT 1325



Course Description

Provides a foundation for the development of knowledge and skills for respiratory care including history, medical terms/symbols, medical/legal, infection control, vital signs, physical assessment, chest x-ray interpretation, medical gas therapy, oxygen analyzers, and humidity/ aerosol therapy.

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. Mosby's Respiratory Care Equipment (ISBN # 978-0-323-05176-7)
4. Dataarc© access
5. A package of #882 Scantrons and #2 pencils

Course Objectives

Upon Completion of this course the student will be able to: Select, review, obtain, and interpret data in a selected respiratory care patient setting; select assemble, and check equipment for proper function, operation, and cleanliness: identify equipment malfunctions; maintain patient records; and demonstrate knowledge of therapeutic procedures.

1. Select, assemble, and check the function of equipment used in: gas analysis, oxygen therapy delivery systems, and aerosol delivery devices.
2. Select/ Revise the appropriate Respiratory Therapy procedures to produce a desired patient outcome.
3. Troubleshoot problems with the interaction of the patient with various Respiratory Care equipment.
4. Perform/analyze/ interpret vital signs, physical assessment, patient interview
5. Describe/identify various diseases requiring specific isolation procedures
6. Perform and demonstrate competency in the laboratory setting for the following procedures: patient assessment, oxygen transport, oxygen delivery devices (nasal cannula, simple mask, partial rebreather, non-rebreather, air-entrainment masks), gas analysis (FiO₂), aerosol delivery devices (face mask, face tent, t-piece), chest x-ray interpretation, aerosol medication delivery (SVN, MDI, DPI)

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 research, the Commission determined that "workplace know-how" consists of two elements: foundation skills and workplace competencies.

Course Outline

- I. Bedside Assessment of Respiratory Disorders
 - A. Interview
 - 1. Purpose
 - 2. Principles of interview
 - a. Verbal and nonverbal communication
 - b. Cross cultural communication
 - 3. Structure and Technique
 - 4. Common Signs and symptoms
 - 5. Performing interview
 - a. Medical History
 - b. Social History
 - c. Job History
 - d. Assessing with Borg Scale
 - 6. Review patient data in medical records
 - B. Physical exam
 - 1. Format for recording
 - a. Computer sign on – legal issues
 - 2. Procedure
 - a. Heart rate- (rate, rhythm)
 - b. Blood Pressure
 - c. Respiratory Rate
 - d. Heart Sounds
 - 3. Analysis/interpretation of findings
 - 4. Performing exam
 - 5. Maintain records and Communicate
 - a. SOAP notes
 - b. SBAR communication
 - c. Document in medical records
- II. Clinical Data
 - A. Complete Blood Count
 - 1. Normal values
 - 2. Interpretation of abnormal Values
 - B. Blood chemistry
 - C. Glucose
 - D. Microbiology
 - 1. Lab tests

2. Diseases requiring specific Isolation

III. Thoracic Imaging

- A. Approach to reading
- B. Techniques and Quality
 - 1. A-P
 - 2. P-A
 - 3. Lateral
 - 4. CT
 - 5. HRCT
 - 6. Ultrasound
 - 7. MRI
- C. Anatomical structures
 - 1. Normal
 - 2. Abnormal
- D. The Pleura
- E. Lung Parenchyma
- F. Mediastinum
- G. Tube markings
 - 1. Et tube
 - 2. Balloon tip flow directed
 - 3. Naso-gastric tube
 - 4. EKG electrodes
- H. Abnormalities
 - 1. Atelectasis
 - 2. Pleural effusion
 - 3. Pneumothorax
 - 4. Abnormal tube positions
 - a. Balloon tip flow directed catheter
 - b. Endo- tracheal tube
 - c. Naso-gastric tube

IV. Humidity and Aerosol Administration

- A. Indications
- B. Delivery Devices
 - 1. Setup
 - a. Large volume Nebulizer
 - b. Drug delivery – via Small volume Nebulizer, MDI and DPI with prescribed drugs
 - c. Passover Humidification (wick and HME)
 - 2. Administration
- C. Problem Solving and Troubleshooting
- D. Selecting Appropriate Therapy

V. Medical Gases

- A. Storage, Delivery, Identification
- B. Central Piping systems
- C. Safety Index system
- D. Regulators

RSPT 1329
Course Syllabus

- VI. Medical Gas Therapy
 - A. Goals and Objectives
 - B. Clinical Practice Guidelines
 - C. Assessing the Need
 - D. Precautions and Hazards
 - E. Delivery Systems
 - 1. Nasal Cannula
 - 2. Simple Mask
 - 3. Ventimask
 - 4. Non-rebreather
 - 5. Partial rebreather
 - 6. Nasal catheter
 - 7. Aerosol Delivery devices to deliver Oxygen
 - a. Aerosol Face tent
 - b. Aerosol Face mask
 - c. T-Tube (Briggs Adapter)
 - d. Aerosol Trach Collar
 - F. Troubleshooting Delivery systems
 - G. Total Flow
 - H. Analysis of percentage
 - 1. Procedure
 - 2. Results
 - 3. Troubleshooting
- VII. Case Studies
 - A. Scenario
 - B. Analyzing data
 - C. Interpretation of data
 - D. Care of Plan
 - E. SOAP Notes

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:

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| 1. 6 exams (4 didactic and 2 lab exams) | 85% |
| 2. Lab | 10% |
| 3. Homework assignments | 5% |

Course Requirements

- 1. Egan workbook Chapter 16- Interpretation of Clinical Lab data

RSPT 1329
Course Syllabus

2. Egan work book Chapter 35- Humidity and Bland aerosol
3. Egan workbook Chapter 37- Storage and Delivery of Medical gases
4. Egan workbook Chapter 38- Medical Gas Therapy
5. Egan workbook Chapter 20- A review of Thoracic Imaging
6. Competency in the following procedures: patient assessment, oxygen transport, oxygen delivery devices (nasal cannula, simple mask, partial rebreather, non-rebreather, air-entrainment masks), gas analysis (FiO₂), aerosol delivery devices (face mask, face tent, t-piece, Trach collar), aerosol medication delivery (SVN, MDI, DPI)

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 | Bedside Assessment of the patient- interview | Egan Chapter 15 |
| 2 | Bedside Assessment of the patient- Interview- Inspection- palpation- percussion and Auscultation (review) | Egan Chapter 15 |
| 3 | Interpretation of Clinical Data | Egan Chapter 16 |
| 4 | Interpretation of Clinical Data/infection control/ exam #1 | Egan Chapter 16 |

RSPT 1329
Course Syllabus

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|------------|---|--|
| 5 | Thoracic Imaging | Egan Chapter 20 |
| 6 | Thoracic Imaging | Egan Chapter 20 |
| 7 | Storage and Delivery of medical gases | Egan Chapter 37 Mosbys Chapter 2 |
| 8 | Storage and delivery of medical gases/exam #2 | Egan Chapter 37 Mosbys Chapter 2 Mosbys – Appendix 2-1, 2-2,2-3 |
| 9 | Gas Analyzers/Medical gas Therapy | Egan Chapter 38 Mosbys Chapter 3 Mosby page 261-264 |
| 10 | Medical Gas Therapy | Egan Chapter 38 Mosbys Chapter 3 |
| 11 | Medical Gas Therapy | Egan Chapter 38 Mosbys Chapter 3 |
| 12 | Humidity and Bland aerosol | Egan Chapter 35 Mosbys Chapter 4 |
| 13 | Humidity and Bland aerosol | Egan Chapter 35 Mosbys Chapter 4 |
| 14 | Humidity and bland aerosol/exam#3 | Egan Chapter 35 |
| 15 | Case studies | Handouts |
| 16 | Case Studies | Handouts |
| Final Week | Exam #4 | |

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

LAB Schedule:

| Week of | Topic | Required Reading |
|---------|---|---|
| 1 | Interviewing, Non-verbal communication and culture, cross-cultural communication- how culture affects communication | |
| 2 | Advanced Chest assessment, Chest X-ray | Dataarc©- competency check off procedure |
| 3 | Advanced Chest assessment, Chest X-Ray | Dataarc©- competency check off procedure |
| 4 | Oxygen supply systems | Chapter 2- Mosby's Dataarc©- competency check off procedure |
| 5 | Oxygen supply systems (moving tanks and | Chapter 3- Mosby's |

RSPT 1329
Course Syllabus

| Week of | Topic | Required Reading |
|----------------|---|--|
| | connections) | Dataarc©- competency check off procedure |
| 6 | Exam #1- Lab | |
| 7 | Oxygen administration , oxygen analysis | Chapter 2- Mosby's Page 27-37 Dataarc©- competency check off procedure |
| 8 | Oxygen administration | Dataarc©- competency check off procedure |
| 9 | Analysis of Fio2 | Dataarc©- competency check off procedure |
| 10 | Humidity and Aerosol | Chapter 4 –Mosby's Page 89- 120 Dataarc©- competency check off procedure |
| 11 | Humidity and Aerosol | Chapter 4- Mosbys Dataarc©- competency check off procedure |
| 12 | Small Volume Nebulizers/ MDI/DPI Breathing Exercises | Chapter 4 Mosbys- page 120-141 Dataarc©- competency check off procedure |
| 13 | Exam #2- Lab | |
| 14 | Competency Check offs | Dataarc©- competency check off procedure |
| 15 | Competency Check offs | Dataarc©- competency check off procedure |
| 16 | Competency Check offs | Dataarc©- competency check off procedure |
| Final week | Competency Check Offs | Dataarc©- competency check off procedure |

Contact Information:

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Office hours: Posted outside office. Additional times are available with appointment. Available for remediation or tutoring.