



**LAMAR INSTITUTE  
OF TECHNOLOGY**

## RSPT 1310 Respiratory Care Procedures I

### **INSTRUCTOR CONTACT INFORMATION**

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Office Location: Gateway ( 3871 Stagg Dr # 194) office # 107  
Office Hours: Posted in Starfish and outside the office door

### **CREDIT**

3 Semester Credit Hours (2 hours lecture, 4 hours lab)

### **MODE OF INSTRUCTION**

Face to Face

### **PREREQUISITE/CO-REQUISITE:**

Prerequisite: RSPT 1213, RSPT 1201

Co-requisite: RSPT 1240, RSPT 1325, RSPT 1160

### **COURSE DESCRIPTION**

Essential knowledge of the equipment and techniques used in the treatment of cardiopulmonary disease.

### **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, Mucus clearance devices, lung expansion 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. 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 (FiO<sub>2</sub>), aerosol delivery devices (face mask, face tent, t-piece), chest x-ray interpretation, Incentive spirometry, Mucus Clearance Devices

## Course Outline

### I. Assessing heart sounds

Evaluate data to monitor trends in Vital signs /physical examination.

- A. Cardiac Sounds / rhythm
  - I. Procedure
  - II. Valves associated with sounds
  - III. Sound associated with Systole and Diastole
  - IV. Normal ( S<sub>1</sub>,S<sub>2</sub>)
  - V. Abnormal (S<sub>3</sub>,S<sub>4</sub>, gallops) murmurs
  - VI. Evaluate data to monitor changes in Heart Sounds
- II. Clinical Data
  - A. Complete Blood Count
    - I. Normal values
    - II. Interpretation of abnormal Values with associated conditionas
  - B. Blood chemistry
  - C. Glucose
  - D. Microbiology
    - I. Lab tests
    - II. Diseases requiring specific Isolation
  - E. Recommendation of Lab test to collect data regarding
    - I. Electrolytes
    - II. CBC
    - III. Coagulation studies
    - IV. Sputum cultures and sensitivities
    - V. Cardiac Biomarkers
  - F. Recommend lab data to monitor trends in fluid balance
  - G. Evaluate data to monitor trends in fluid balance
- III. Thoracic Imaging
  - A. Approach to reading
  - B. Access patient position from image

C Access for hyperlucency and hypolucency to determine proper penetration/ quality for a Chest radiograph

D. Recommend best radiological studies to assist physician in determining diagnosis.

Techniques and Quality

- i. A-P
- ii. P-A
- iii. Lateral
- iv. CT
- v. HRCT
- vi. Ultrasound
- vii. MRI

E. Evaluate results of full chest assessment to correspond to radiologic findings

b. Anatomical structures

- i. Normal
- ii. Abnormal

c. The Pleura

d. Lung Parenchyma

e. Mediastinum

f. Utilize chest xray to determine heart size and position

g. tube markings and positions ( normal and abnormal)

- i. Et tube
- ii. Balloon tip flow directed
- iii. Naso-gastric tube
- iv. EKG electrodes
- v. Chest tube

b. Abnormalities

- i. Access for lung hyperinflation and hypoinflation
- ii. Access for foreign bodies
- iii. Atelectasis/ Consolidation
- iv. Pleural effusion- Recommend treatment
- v. Pulmonary Edema
- vi. Pulmonary Artery size
- vii. Diaphragm
- viii. Trachea
- ix. Pneumothorax-recommend treatment
- x. Pneumothorax- recommend treatment

h. Humidity and Aerosol Administration

- a. Indications
- b. Delivery Devices
  - i. Setup

- a. Large volume Nebulizer
  - b. Drug delivery – via Small volume Nebulizer, MDI and DPI with prescribed drugs
  - c. Passover Humidification (wick and HME)
    - ii. Administration
  - c. Problem Solving and Troubleshooting
  - d. Selecting Appropriate Therapy
  - e. Recommend devices and assess the need
- i. Medical Gases
    - a. Storage, Delivery, Identification
    - b. Central Piping systems
    - c. Safety Index system
    - d. Regulators
    - e. Duration of Flow ( liquid and gas systems)
    - f. Oxygen concentrators
    - g. Flowmeter devices
    - h. Cylinders
    - i. Blenders
    - j. Air compressors
- j. Medical Gas Therapy
    - a. Goals and Objectives
    - b. Clinical Practice Guidelines
    - c. Assessing the Need
    - d. Precautions and Hazards
    - e. Delivery Systems
      - i. Nasal Cannula
      - ii. Simple Mask
      - iii. Ventimask
      - iv. Non-rebreather
      - v. Partial rebreather
      - vi. Nasal catheter
      - vii. Aerosol Delivery devices to deliver Oxygen
    - a. Aerosol Face tent
    - b. Aerosol Face mask
    - c. T-Tube ( Briggs Adapter)
    - d. Aerosol Trach Collar
    - f. Assemble and Troubleshooting Delivery interfaces
    - g. Total Flow
    - h. Analysis of percentage
      - i. Procedure
      - ii. Results
      - iii. Troubleshooting
    - i. Determine proper gas delivery device to ensure adequate flow and ensure adequate oxygenation.
    - j. Adjust patient positions to minimize hypoxemia

- k. Recommend additional procedures to minimize hypoxemia
- l. recommend optimal oxygen delivery device based off patient assessment and outcomes.

#### D Lung expansion therapy

- a. Determine Need
- b. Procedures to utilize for lung expansion therapy
- c. Perform lung expansion therapy
- d. Trouble shoot devices/circuits

Recommend procedures and recommend changes based off patient data Assessment and outcome

#### E. Bronchial Hygiene

- A Normal Airway Clearance
- B. Abnormal Airway Clearance
- C. Therapies utilized for Bronchial Hygiene
- D. Troubleshoot equipment utilized to deliver Bronchial Hygiene
  - A. HFCWO
  - B. Vib PEP
  - C. IPV
  - D. MIE

E. Coughing techniques employed to increase mucus clearance

FET

Autogenic drainage

Abdominal thrust

F. Recommend changes based on patient response to Bronchial hygiene

#### Pulse Oximetry

- A. Indications
- B. Application
- C. Results-Normal and abnormal - accurate and inaccurate
- D. Utilize results to determine patients needs or responses to therapy

## REQUIRED TEXTBOOK AND MATERIALS

- Egans Fundamentals of Respiratory Care 12<sup>th</sup> Edition ( ISBN # 978-0-323-51112-4)
- Egans Fundamentals of Respiratory Care Workbook 12<sup>th</sup> Edition ( ISBN 978-0-32355366-7)
- Mosby's Respiratory Care Equipment 10<sup>th</sup> Edition ( ISBN # 978-0-323-55313-1)
- Trajecsys © access
- A package of #882 Scantrons and #2 pencils
- Stephoscope
- Watch with a second hand

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## ATTENDANCE POLICY

Be familiar with the LIT student handbook and the Respiratory Care student handbook. Violation of policies will result in appropriate action being taken.

Attendance: Attendance is expected. If you do not attend class you are missing some very valuable information. Test will include both textbook material and anything mentioned in class. According to LIT policy, if absences seriously interfere with performance the instructor may recommend to the Department Chair that the student be dropped from the course. Attendance is taken in both classroom and lab. You will be dropped from the course for absences above 3/semester. (includes both classroom and lab). Absences in lab will result in a 0.

Tardiness: Punctuality is expected. 3 tardies in a semester will be considered an absence.

Homework assignments are expected to be turned at the start of the day it is due. (no late work accepted)

According to LIT policy: Students with approved absences shall be allowed to make up examinations and written assignments without penalty. This privilege does not extend to unapproved absences. The determination of whether an absence is excused or approved is the responsibility of the instructor, except in the case of approved absence for an Institute-sponsored activity. If absences seriously interfere with performance the instructor may recommend to the Department Chair that the student be dropped from the course.

### **Excused absence:**

Things that may be considered excused absences:

Doctor visits with a written excuse from a doctor/ hospital.

Death of immediate family member. Provide memorial pamphlet

Summons for court appearance. Provide court ordered appearance papers.

**You must call prior to missing an exam.** Calling prior to the missed exam does not automatically excuse you from missing an exam. If you fail to call or fail to present requested documentation upon the first class day return the grade of 0 will be assigned. There will be no makeup exams or lab assignments for unexcused absences. Exam must be taken on first class day return or at the discretion of the faculty member

## DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process by the specified drop date as listed on the [Academic Calendar](#). If you stop coming to class and fail to drop the course, you will earn an “F” in the course.

## STUDENT EXPECTED TIME REQUIREMENT

For every hour in class (or unit of credit), students should expect to spend at least two to three hours per week studying and completing assignments. For a 3-credit-hour class, students should prepare to allocate approximately six to nine hours per week outside of class in a 16-week session OR approximately twelve to eighteen hours in an 8-week session. Online/Hybrid students should expect to spend at least as much time in this course as in the traditional, face-to-face class.

## COURSE CALENDAR

DATE	TOPIC	READINGS (Due on this Date)	ASSIGNMENTS (Due on this Date)
	ASSIGNMENT/ CLASS SCHEDULE and EXAM DATES are subject to change in order to facilitate student learning and outcomes.		
1	Blood Chemistry and Hematology- Interpretation of Clinical Data LAB: clinical data/adaptors	Chapter 17- Egan Trajecsys © competency check off procedure	
2	Imaging the Thorax LAB: Viewing CXR	Chapter 21 – Egan Mosbys Chapter 4 Trajecsys © competency check off procedure	
3	Exam #1 ( workbook Chapter 17 and 21 due) / Storage and Delivery of Medical Gas LAB: CXR	Chapter 40-Egan Mosbys Chapter 4 Trajecsys © competency check off procedure	
4	Therapeutic Gases: Manufacture/Storage/Delivery, Medical Gas Therapy LAB: Exam CXR	Chapter 40- Egan Mosbys Chapter 4  Trajecsys © competency check off procedure	
5	Medical Gas Therapy LAB: Oxygen supply systems, connectors, regulators, gauges, connecting tanks and tank markings	Chapter 42 –Egan Mosbys Chapter 4  Trajecsys © competency check off procedure	
6	Medical Gas Therapy	Chapter 42- Egan	

	LAB: Oxygen administration, oxygen analysis , Delivery devices	Mosbys Chapter 5 Trajecsyst © competency check off procedure	
7	Exam #3 ( workbook Chapter 40 and 42 Due) LAB: Oxygen delivery devices ( check off on Tanks	Chapter 42-Egan Mosbys Chapter 5 Trajecsyst © competency check off procedure	
8	Humidity and Aerosol LAB: Discovery of devices	Chapter 39- Egan Mosbys Chapter 5 Trajecsyst © competency check off procedure	
9	Humidity and Aerosol LAB: Humidity and Devices	Chapter39- Egan Mosbys Chapter 5 Trajecsyst © competency check off procedure	
10	Humidity and Aerosol/ Exam #4 LAB: Bronchial Hygiene-devices PEP, Flutter, IPV	Chapter 39- Egan Mosbys Chapter 6 Trajecsyst © competency check off procedure	
11	Lung Expansion LAB: IS	Chapter 43- Egan Mosbys Chapter 6 Trajecsyst © competency check off procedure	
12	Lung expansion /Exam #5 LAB : IPPB	Chapter 43 Egan Mosbys Chapter 4 Trajecsyst © competency check off procedure	
13	Airway Clearance LAB: practice for competency	Chapter 44- Egan Trajecsyst © competency check off procedure	
14	Airway Clearance LAB: Practice for Competency	Chapter 44 – Egan Trajecsyst © competency check off procedure	
15	Airway Clearance LAB: Check off for Competency	Chapter 44- Egan Trajecsyst © competency check off procedure	
16	Airway Clearance Exam #6 LAB: Check off for Comptency and Lab Exam	Chapter 44 –Egan Trajecsyst © competency check off procedure	



## **COURSE EVALUATION**

Final grades will be calculated according to the following criteria:

- 6-7 Exams 85%
- Lab/quiz/homework/ assignments 15%

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 (FiO<sub>2</sub>), aerosol delivery devices ( face mask, face tent, t-piece, Trach collar, Incentive Spirometry, Mucus clearance devices.

If Competency is not achieved, it will result in a F within this course.

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## **GRADING SCALE**

90 – 100	A
80 – 89	B
77 – 79	C
68 – 76	D
0 – 67	F

LIT does not use +/- grading scales

## **ACADEMIC DISHONESTY**

Students found to be committing academic dishonesty (cheating, plagiarism, or collusion) may receive disciplinary action. Students need to familiarize themselves with the institution's Academic Dishonesty Policy available in the Student Catalog & Handbook at <http://catalog.lit.edu/content.php?catoid=3&navoid=80#academic-dishonesty>.

## **TECHNICAL REQUIREMENTS**

The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be online at <https://lit.edu/online-learning/online-learning-minimum-computer-requirements>. A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of online technology and resources.

## **DISABILITIES STATEMENT**

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles' Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email

[specialpopulations@lit.edu](mailto:specialpopulations@lit.edu). You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](#).

### **STUDENT CODE OF CONDUCT STATEMENT**

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at [www.lit.edu](http://www.lit.edu). Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

### **STARFISH**

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

### **ADDITIONAL COURSE POLICIES/INFORMATION**

- Beepers, telephones, headphones, and other electronic devices must be turned off while in class. No cell phones or electronic devices are to be out during a exam. This will result in a Zero for that exam and the Respiratory Care Handbook will be utilized for disciplinary action. All personal items will be placed at the front of the classroom and cell phones will be placed on presentation desk.
1. No children allowed in the classroom
  2. No late assignments will be accepted
  3. Abide by LIT policies
  4. Abide by policies within the Respiratory Care Handbook
  5. Abide by instructor specific policies; this will be distributed on the first class day.
  6. Exam dates will be distributed the first class day.
  7. Electronic communication will be thru your LIT e-mail.
  8. Homework and assignments will be handed out in class. They are due at the beginning of class on the date they are due.
  9. If you have to miss an exam. You must call/or email the instructor prior to missing the exam. You will be allowed to make up the exam if you provide documentation of a doctor's note. It is the instructor decision to accept or decline the document. The exam must be taken the first class day return. ( unless otherwise directed by the instructor)