

## Respiratory Care Sciences (RSPT 1325)

**Credit:** 3 semester credit hours (3 hours lecture, 1 hours lab)

**Prerequisite:** RSPT 1201

**Co-requisite:** RSPT 1213, RSPT 1329, RSPT 1207, RSPT 22310



**Course Description:** Physics, mathematics, and chemistry as related to respiratory care.

### Required Textbook and Materials:

1. Respiratory Care – Principles and Practice 3<sup>rd</sup> edition  
( ISBN # 978-1-284-05000-4)
2. Navigate Access- Respiratory Care – Principles and Practice 3<sup>rd</sup> edition
3. Mosby's Respiratory Care Equipment  
(ISBN # 978-0-323-09621-7)
4. Respiratory Care Sciences –An Integrated Approach – 4<sup>th</sup> edition  
(ISBN# 1-4018-6491-0)
5. A package of #882 Scantrons and #2 pencils

### Course Objectives

Upon completion of this course the student will be able to apply mathematics and the concepts of chemistry/physics/microbiology as it relates to respiratory care.

Student will be able to :

1. Relate mathematics to perform various functions commonly used in respiratory Care
2. Identify a basic understanding of microbiology needed for the Respiratory care practitioner including collection of sputum samples, the treatment of patients having bacterial, viral, or fungal diseases, the disinfection and sterilization of respiratory care equipment, the adherence to and the utilization of appropriate isolation procedures and the prevention of nosocomial infections.
3. Relate basic concepts of chemistry to clinical respiratory care and pulmonary physiology
4. Apply a variety of physical principles to respiratory care equipment and cardiopulmonary physiology.

### Course Outline

- I. Relating Math
  1. L. to ml
  2. Ml to L
  3. g to Mg
  4. Mg to g
  5. ml to cc
  6. gtts to ml

Revised 08/18

7. cc to ml
8. L/min to L/sec
9. L/sec to L/min
10. lbs to kg
11. Kg to lbs
12. Calculating ideal body weight
13. Calculate TCT, Rate, I:E ratios
14. % solutions

## II. Microbiology

1. Classification
2. Morphology and staining
  - A. Gram + and Gram –
  - B. Acid Fast
3. Structure
4. Growth
5. Control of growth
6. Fungi
7. Viruses
8. Spread of Infection
  - A. Hosts and Modes
    1. Contact
    2. Droplet
    3. Airborn
    4. Misc types of modes
  - B. Infection control strategies
    - a. PPE
    - b. Disease Specific Isolations
    - c. Causative agent
  - C. Equipment
    - a. Disinfection
    - b. Processing
    - c. Surveillance
  - D. Vaccinations

## III. Chemistry

1. Kinetic theory of matter
2. Pressure
3. Gas Laws
4. Chemical Laws
5. Density and specific gravity
6. Temperature scales
7. Unit conversions
8. Electrochemistry

## IV. Physics

1. Work
2. Energy
3. Fluid dynamics
4. Mechanics of ventilation
5. Starlings law of capillaries
6. Physical and electrical analyzers

V. Graph Interpretation

1. Types of graphs
  - a. Volume- time
  - b. Pressure- time
  - c. Volume- Pressure
  - d. Flow- time

**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 – 5 exams	80%
Lab/Homework	20%

**Course Policies**

1. No food or drink, or use of tobacco products in class
2. Cheating of any kind will not be tolerated.
3. Beepers, telephones, headphones, and other electronic devices must be turned off while in class. No cell phones during exams. You are not allowed to utilize a calculator that is within a cell phone or electronic device.
4. No children allowed in the classroom
5. No late assignments will be accepted
6. Abide by LIT policies
7. Abide by policies within the Respiratory Care Handbook
8. Abide by instructor specific policies; this will be distributed on the first class day.
9. Exam dates will be distributed the first class day.
10. Electronic communication will be thru your LIT email account.
11. Homework assignments: will be given periodically with due dates. No late homework assignments are accepted.

### **Technical Requirements (for courses using Blackboard)**

The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:

[https://help.blackboard.com/en-](https://help.blackboard.com/en-us/Learn/9.1)

[us/Learn/9.1](https://help.blackboard.com/en-us/Learn/9.1) 2014 04/Student/015 Browser Support/015 Browser Support Policy

A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of the online technology and resources.

### **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. You may also visit the online resource at <http://www.lit.edu/depts/stuserv/special/defaults.aspx>

### **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) or obtained in print upon request at the Student Services Office. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document