



**LAMAR INSTITUTE
OF TECHNOLOGY**

Respiratory Care Sciences (RSPT 1325)

INSTRUCTOR CONTACT INFORMATION

Instructor: Cynthia McKinley
Email: camckinley@lit.edu
Office Phone: 409-247-5068
Office Location: Gateway Room 107
Office Hours: Posted on door

CREDIT

3 Semester Credit Hours (3 hours lecture, 1 hours lab)

MODE OF INSTRUCTION

Face to Face

PREREQUISITE/CO-REQUISITE:

Pre-requisites: RSPT 1201, RSPT 1213

Co-requisites: RSPT 1310, RSPT 1240, RSPT 1160

COURSE DESCRIPTION

Physics, mathematics, and chemistry as related to respiratory care.

COURSE OBJECTIVES

Upon completion of this course, the student will be able to

- Relate mathematics to perform various functions commonly used in respiratory Care
- 1. 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.
- 2. Relate basic concepts of chemistry to clinical respiratory care and pulmonary physiology
- 3. 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
 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

REQUIRED TEXTBOOK AND MATERIALS

1. Respiratory Care Sciences –An Integrated Approach – 4th edition (ISBN# 1-4018-6491-0)
2. A package of #882 Scantrons and #2 pencils

ATTENDANCE POLICY

Attendance/Class 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.

Absences in lab will result in a 0.

Tardiness: Punctuality is expected.

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 this will be considered an unexcused absence. Make up exams for excused absences must be taken on the first class day return. There will be no makeup exam or lab assignment for unexcused absences. Class Roll will be taken on the first and fourth class days. If your name is not on the class roster on the fourth class day, you will be asked to leave class until this matter is taken care of.

Please turn off all beepers, phones or other noise makers while in class

According to LIT policy, no children will be allowed in the classroom.

Electronic communication will be sent thru your LIT email account. You are responsible for checking this account.

RESPECT OTHERS. If you are disrespectful or rude you will be asked to leave class.

Class participation is encouraged. Ask questions if you do not understand!!!

Extra Credit will not be offered.

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 Lab
1	Application of Math Concepts. Volume and Pressure measurements	RC Sciences Chapter 4	Changing units of volume
2	I:E ratios/Flows (L/min, L/sec)	RC Sciences Chapter 4	Changing units of weight
3	Exam #1		I:E ratio calculations
4	Physics- Matter	RC Sciences Chapter 3 P&P chapter 52	Demo of atmospheric pressure. Gas laws
5	Physics- Gas laws /Sterlings law		Physical principles with graphic demonstration with ventilator graphics.
6	Physics- Temperature scales	RC Sciences Chapter 3 P&P chapter 52	Ph
7	Pressure/volume/flow graphic interpretation	RC Sciences Chapter 3 P&P chapter 52	Strong and weak acids
8	Exam #2		BTPS and ATPS
9	Elements Compunds/ Basic Chemistry	RC Science Chapter 3 P&P Chapter 53	Chemical reaction of the HGB
10	Fluid balance	RC Science Chapter 3 P&P Chapter 53	Air / oxygen ratios with total flow
11	Classification of Microbs	RC Science Chapter 7 P&P Chapter 54	Continue with total flow
12	Bacterial growth/ Disinfestation and sterilization Exam #3	RC Science Chapter 7 P&P Chapter 54	Fluid Dynamics, Air-Oxygen ratios
13	Interpretation of graphics and scalers	RC Science Chapter 7 P&P Chapter 54	Basic techniques in the Microbiology Lab/Bioterrism Looking at Microbs
14	Interpretation of graphics and scalers	RC Science Chapter 7 P&P Chapter 54	Graph Interpretation
15	Interpretation of graphics	RC Science Chapter 7 P&P Chapter 54	Graph Interpretation
16	Exam #4		Review

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

4 – 5 exams	80%
Lab/Homework/pop quiz/ assignment	20%

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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. 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. 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

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. All personal items will be placed at the front of the classroom and cell phones will be placed on presentation desk.
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.