

El Paso Community College

Syllabus

Part II

Official Course Description

SUBJECT AREA	<u>Respiratory Care Technology</u>
COURSE RUBRIC AND NUMBER	<u>RSPT 1325</u>
COURSE TITLE	<u>Respiratory Care Sciences</u>
COURSE CREDIT HOURS	<u>3 3 ; 1</u> Credits Lec Lab

I. Catalog Description

Studies physics, mathematics, and chemistry as related to respiratory care. A grade of "C" or better is required in this course to take the next course. **(2:1). Lab fee.**

II. Course Objectives

A. Unit I. Mathematics

1. Explain the rationale and use of significant digits in calculations.
2. Express ratios, proportions, and percentages as equivalents of each other.
3. Explain the relationship between decimals, common fractions, ratios, and percentages.
4. Apply the concept of dimensional analysis to common respiratory problems.
5. Calculate common drug dosages.

B. Unit II. Chemistry

1. List the commonly used units of measure for gas volumes and pressures.
2. Distinguish among PSI, mmHg, atm, kPa, and cmH₂O.
3. Accurately apply the gas laws, including those governing water vapor pressure.
4. Describe the law of mass action and the Henderson-Hasselbalch equation.
5. Explain the concepts of density and gas measurement.
6. Convert between Centigrade, Fahrenheit, and Kelvin measures of temperature.

C. Unit III. Physics

1. Explain the movement of fluids (gas and liquid) within differing diameters of airways.
2. Calculate air entrainment and pressure differences as regards the Bernoulli principle.
3. Explain the Venturi principle and the effect on fluid movement.
4. Calculate air:oxygen ratios for various percentages of oxygen.
5. Distinguish between laminar and turbulent flows.
6. Distinguish among compliance, resistance, and elastance.

D. Unit IV. Physiologic Chemistry

1. Explain the structure of hemoglobin and its relationship to oxygen and carbon dioxide.
2. List and define the different species of hemoglobin in human physiology.
3. Explain the oxygen dissociation curve.
4. Explain the affinity for oxygen and carbon dioxide in the red blood cells.

E. Unit V. Microbiology

1. Identify the classification of microbes.
2. Explain how to control the growth of microorganisms.
3. Discuss the normal flora and host-parasite relationships.

4. Discuss the concept of pathogenicity.
5. Identify common respiratory microorganisms that cause respiratory ailments.

III. THECB Learning Outcomes (WECM)

1. Apply concepts of mathematics, chemistry, and physics as related to respiratory care.

IV. Evaluation

At the end of one or more units, students will be tested on the material related to those units. The minimum passing score is 78%. A final examination will be administered. In addition, quizzes, homework, and lab work will be assigned throughout the semester. Special assignments may be included at the discretion of the instructor. Late exams and assignments will be penalized 5 points for every day beyond the due date.

Final Grade Distribution Percent of Grade

4 Unit Tests	70%
1 Final	20%
<u>Homework, Quizzes</u>	<u>10%</u>
	100%

- 93 to 100% A
- 86 to 92% B
- 78 to 85% C
- 70 to 77% D
- 69 or below I or F

As the course moves forward vigorously, make-up quizzes, labs, and, exams are allowed in only the most extreme of circumstances. Please be in class and on time for lecture, lab, quizzes, and exams.

V. Disability Statement (Americans with Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.