THE UNIVERSITY OF TEXAS MEDICAL BRANCH AT GALVESTON
RESPIRATORY CARE PROGRAM

RESC 3412-5090 Pulmonary Physiology Fall 2009

01-RESC-3412-5090-SYL-Fall-2009

Course Description: (4 hrs lect, demo lab) 4 sem credits

An intermediate course providing students an opportunity to obtain knowledge related to pulmonary physiology. Lectures will include presentations of the structure and function of the normal lung, lung mechanics, gas diffusion and transport, ventilation-perfusion relationships, blood gas regulation and ventilatory control. Demonstrations support lecture topics using a variety of laboratory models. Credit for this course will be based on didactic quizzes, examinations and laboratory reports.

Course Instructor: Jon O. Nilsestuen, PhD, RRT, FAARC

Office: RM 4.508 SAHS Bldg.

Telephone: 772-5693 E-Mail jnilsest@utmb.edu
Office Hours: M,W,Th (11:00-12:00) T,F (1:00-2:00)

Textbooks:

1. **Primary Text**: Respiratory Care Anatomy and Physiology; Author Will Beachey; Mosby
2. Additional Resource: Pulmonary Physiology; Author: Michael Levitzky; McGraw-Hill
3. Additional Resource: Respiratory Physiology, the Essentials; Author: John B. West

Course Goals:

1. To provide a broad base of information about the anatomy of the respiratory system, both gross and microscopic, that will aid the understanding of respiratory function and respiratory pathology.
2. To apply physical laws to the movement of gases within the body.
3. To integrate the gas laws with pulmonary mechanics to understand how ventilation occurs.
4. To discuss, in depth, the interaction of the circulatory and respiratory systems in the transport of atmospheric gases between the atmosphere and body tissues.
5. To discuss the mechanisms for controlling acid-base balance and pulmonary ventilation.
6. To relate basic physiologic principles to the clinical respiratory care setting.

Objectives: Provided With Each Lecture Topic.

PULMONARY PHYSIOLOGY LECTURE SCHEDULE FALL 2009

Fri afternoon Make-up time: 1:00 PM to 2:00 PM

WK 1 Tue Sept 01 (9:-11:30) **Unit 01-Intro**-Principles of Physiology,

Fri sept 04 (9:-12:) **Unit 02-Physics of Gases**: **Eagan**-Chapter-7 -Physical Principles

WK 2 Tue Sep 08 (9:-11:30) Physics of Gases, Problems: **Eagan**-Chapter 7

Fri Sep 11 (9:-12:) **Unit 03 Upper Airway**, U-Airway Models: Beachey Chapt 1 Lev-Chapt 1

Wk 3 Tue Sep 15 (9:-11:30) **Unit 04 Lower Airway** & LA Models:

Beachey Chapt 1 Lev -Chapt 1

Fri Sep 18 (9:-12:) **Unit 05 Lower Airway Defense**: Lung Clearance:

Beachey Chapt 1 Lev Chapter 10 p-216-221

Unit 06 Thorax and Muscles; Beachey Chapt 2 Levitzky Chapt. 2 p-14-17

WK 4 Tue Sep 22 (9:-11:30) **Unit 07 Ventilation/Lung Volumes:**

Beachey Chapt 2,4 Levitzky Chapt.2 p-11-14,17-20 Chapt.3 p-65-71

Fri Sep 25 (9:-12:) Review for Exam 1; Begin **Unit 08 Compliance**:

Beachey Chapt 3 Lev Chapt 2 p-20-31

Fri Group #1 (1:-3:) Group #2 (3:-5:) Beach Chapt5 Spiro-Lab-Lung Volumes:

WK 5 LRC **Tue Sep 29 (9: to 12:00) EXAM 1 Units 01-07 including Ventilation and Lung Volumes**

Fri Oct 02 Jon NN2 (9:-12:) **Unit 08 Compliance** Beachey Chapt 3

WK 6 Tue Oct 06 (9:-11:30) **Unit 09 Resistance & WOB**: Beachey Chapt 3 Lev -Chapt 2 p-32-50

Fri Oct 09 (9:-12:) **Unit 09 Resistance & WOB**

WK 7 Tue Oct 13 (9:-11:30) **Unit 09 WOB**; Beach Chapt 3 **Review for EXAM 2**

Library **Fri Oct 16 (9: to 12:) EXAM 2 –Units 08-09 Mechanics C & R, WOB**

WK 8 Tue Oct 20 (9:-11:30) **Unit 10 Diffusion and Gas Exchange**: Beach Chapt 7 Lev-Chapt6

Fri Oct 23 (9:-12:) Unit 10 Diffusion and Gas Exchange:

WK 9 Tue Oct 27 (9:-11:30) **Unit 11 Perfusion**: Beach Chapt 6 Lev -Chapt 4

Fri Oct 30 (9:-12:) Unit 11 Perfusion:

WK 10 Tue Nov 03 (9:-11:30) **Unit 12 Vent-Perfusion**: Beach Chapt 12 Lev -Chapt5

Fri Noc 06 (9:-12:) Unit 12 Vent-Perfusion: Review for Exam 3

WK 11 Tues Nov 10(9:-11:30) **Unit 13A Physiology of Hemoglobin**: Beach Chapt 8 Lev Chpt. 7

Unit 13 Oxygen Transport: Beach Chapt 8 Lev -Chapt 7

Library **Fri Nov 13 (9:00 to 12:00 PM) EXAM 3 Diffusion thru Vent & Perf**

WK 12 Tue Nov 17 (9:-11:30) **Unit 14 Carbon Dioxide Transport**: Beach Chapt 9 Lev -Chapt 7

Fri Nov 20 (9:-12:) Fri Nov 20 1:00 to 3:00 Complete Oxygen and Carbon Dioxide Transport Review for Exam 4

WK 13 Library **Tue Nov 24 (9:-12:00) Exam 4 Covering Oxygen and CO2 Transport**

Fri Nov 27 Thanksgiving Holiday

WK 14 Tue Dec 01 (9:-11:30) (9:-11:30) **Unit 15 Acid Base**: Beach Chapt 10 Lev Chapt. 8

Fri Dec 14 **Unit 16 Control of Vent**; Beach Chapt 11 Lev -Chapt 9

Review and **Course Evaluations**

WK 15 Tue Dec 08 Finals Week –no class on this day

Library Fri Dec 11 9:00 to 12:00 **FINAL EXAM**

GRADING:

EXAMS	60% (Four exams each 15%)
FINAL	40%
Total	100%

Course Evaluation: This is a course requirement. There will be scheduled time for students to complete an on-line course evaluations.

Scheduling of Classes and Exams: You are responsible for making appropriate arrangements to attend scheduled classes. Ask permission ahead of time if there are unusual circumstances; requests after the fact will be denied.

Excused Absence on Holy Days: Students wishing to be excused from classes, tests or assignments because of religious days must submit formal requests to the Office of Academic Affairs. Special forms are available in the student handbook and must be submitted within the first 15 days of the semester. Special holy days require verification from a religious official.

Academic Progress: Information regarding the Student's academic progress in this course will be shared with their Academic Advisor and/or Department Chair. Student's making unsatisfactory progress may be referred to the Office of Student Affairs for assistance.

University Statement on Equality, Tolerance and Affirmative Action
Please indicate by the end of the 2nd week of the course if you will need accommodations under the Americans with Disabilities Act (Public Law 101-336). If the need for ADA accommodations should arise during the semester you will need to make your request known to the ADA Coordinator in the Office of Student Affairs

Academic Integrity: Academic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, and any act designed to give unfair advantage to a student or the attempt to commit such an act.
Procedures to be followed in the event of alleged academic dishonesty are described the Rules and Regulations of the Board of Regents of The University of Texas System, and the SAHS Student Handbook found at http://www.sahs.edu. Alleged academic dishonesty issues should be reported to the Associate Dean for Student Affairs.

Betty J. Jewell: Library Computers 409-772-2384