College of Health Sciences and Human Services

SYLLABUS: *Cardiopulmonary Anatomy & Physiology*
RESP 3433
FALL SEMESTER 2025

Contact Information

Instructor: Professor Mary Sue Owen MS, RRT-NPS, ACCS, RPFT, AE-C
Office: Centennial 420F
Office hours: By appointment
Office Phone: (940) 397- 4654
E-mail: Mary.owen@msutexas.edu
Class meets: M/W 8:00-10:20 a.m. Centennial Hall Room 334

Course Materials

Des Jardins, Terry, 2018. *Cardiopulmonary Anatomy & Physiology, 7th Edition*. Cengage ISBN 978-1-337-79490-9

Course Description

The focus of this lecture course is on applied physiology of the respiratory and cardiovascular systems. Emphasis is placed on standard structure and function. Topics include mechanics of spontaneous breathing, pulmonary circulation, gas conduction and exchange, gas transport, cardiac output, and its control, renin-angiotensin-aldosterone system, fundamental ECG analysis, the cardiac cycle and acid-base balance.

Course Prerequisite(s)

Enrolled in Respiratory Care program.

Learning Goals

I. General Learning Goals:

- Learn the human anatomy of the cardiopulmonary system to include some developmental changes from the embryo to an adult.
- Learn basic human cardiopulmonary physiology.

II. Learning Objectives

- Describe the normal anatomy of the head and upper airway.
- Describe the normal anatomy of the cardiovascular system, mediastinum, and lungs.
- List and describe the functions of the muscles of respiration.
- Identify the lung volumes and subdivisions.
- Describe control of breathing.
- Describe the compliance of the lungs as it relates to the mechanics of breathing.
- Describe the role that surface tensions play with the expansion and deflation of the lung.
- Define airway resistance, discuss its role in ventilation and how different factors regulate airway resistance in the body.
- Describe dead space in the lungs and its effect on alveolar ventilation.
- Describe the relationships of minute volumes, alveolar volumes, and dead space volumes.

- Know the mechanisms of oxygen transport.
- Define pulmonary gas diffusion and discuss the physical and physiological factors that affect diffusion.
- Know basic values for hemodynamic testing.
- Interpret basic ECG's
- Know the structure and function of the kidney and its role in acid/base balance.

Course Policies

Attendance Policy: Regular class attendance is required. Punctuality to class is imperative. Exams will be given during the first part of class with an allotted amount of time. If the student is late, they will be given the remaining class time to finish the exam. At the end of the allotted time, all exams must be turned in, complete or not. No distinction is made between excused and unexcused absences unless the absence has been cleared through the office of the Dean of Students, Athletic Department, Academic Affairs. If a student misses a lecture, it is the student's responsibility to work with other class members to determine what material was missed. Prior absence approval may be granted after review by the professor. If you have a documented disability that will impact your work in this class, please contact me to discuss your needs. Please refer to the MSU Student Handbook for more information.

1 day missed = no point deduction off of final grade

2 – 4 days missed = 5 point deduction off of final grade 5 + days missed = instructor initiated drop from the class

CLASS PARTICIPATION:

Class participation is an integral part of this course. There are numerous activities that require each student to participate from the readings, case studies, research, or in response to the discussion by others. You are expected to participate actively in and contribute to the learning experience in this course.

Class attendance is strongly advised since examinations will be based upon material discussed in class. All reading material must be read prior to class for full topic discussion. It will be strongly encouraged to inform the professor in advance of any need to miss class (phone message or email is ok) and it is advisable to ask another student to take good notes and pick up handouts.

Other Related Policies

Missed Examination Policy: Late work is not accepted

Grading and Evaluation:

Lecture examinations: During the semester there will be in-depth exams covering the specified material. Examinations may consist of true/false, multiple choice, short answer or essay questions.

FINAL EXAMINATION

A comprehensive examination consisting of true/false, multiple choice, short answer or essay questions will be given.

CLASS PRESENTATION

In order to understand how gases transfer across the alveolar capillary membrane, we must learn the behaviors of gases and partial pressures. You will be assigned a group project to be presented in class.

RESEARCH PAPER

Select a topic of interest to you within (Cardiopulmonary A & P) the paper should be approximately 3 pages (excluding cover sheet and reference page). Include these three aspects of the topic:

- What is known and reported in the literature and research about your topic?
- Given what the literature and research say about your topic, what conclusions can you draw?
- Given these conclusions, what are the implications for the future of respiratory care?

You must cite your references at the end of your paper. The paper must have at least 5 references. References must be current (within the last 5 years). **Use scholarly sources; apply APA style to the manuscript. See grading rubric.**

Each item must be submitted to the drop box. Failure to submit items will result in a drop in the final paper grade.

Due Dates:

Topic: Sep 3rd: Outline and Sources: September 17th: Reference Page: Sept 24th Final Paper: Oct 27th

Begin drafting papers as early as possible and take advantage of the MSU Writing Center, located off the 2nd floor atrium of Prothro Yeager! Tutoring is available Monday through Thursday from 9am to 4pm; you can also find a tutor at the satellite location in Moffett Library Honors Lounge, Sunday and Thursday from 6pm to 9pm. Writing tutors will not edit your papers for you, but they will provide support and feedback at every stage of the writing process, from brainstorming to drafting, revising to proofreading.

The Writing Center opens on Tuesday, September 5th; if you would like to schedule a time for a tutor to give a brief presentation on the

Writing Center, please complete the Classroom Visit Request form.

Table 1: Points allocated to each assignment

Element	Percent
Exams	40
Final	25
Presentation	10
Midterm	15
Research Paper	10

Table 2: Grading System

Grade	Points
A	90-100
B	80-89
C	75-79
D	60-74
F	Less than 60

Grading Policies: **A minimum grade of 75 (C) is required in all respiratory courses. Failure to attain a minimum grade of C will prevent the student from progressing in the program.**

Academic Integrity:

Professors have become increasingly aware of, and therefore more adamant about, plagiarism on college campuses. Remember that copying any part of someone else's work without properly citing it constitutes plagiarism. Further, copying other's ideas and portraying them as your own, even if not word for word, constitutes plagiarism. The professor will investigate any suspected cases of academic dishonesty. If further action is necessary, the professor will turn the incident into the proper MSU authorities for disciplinary action.

In addition to the issue of plagiarism, academic dishonesty in an online environment may include: having someone else complete any assignment or any portion of an assignment and/or discussing via any medium, even email, any exam question.

Use of Artificial Writing Generators

The use of any artificial writing generator (ex: Chat GPT) is strictly prohibited. The use of artificial writing generators can and will be deemed a violation of the university's honor system. Any or all parts of a written assignment identified as having elements of writing attributed to an artificial writing source will automatically receive a zero (0) for a grade. ***Students will not be allowed to make up those assignments.*** This program uses software that detects AI generators. For more policy information regarding cheating and plagiarism, see the Honor System section in this syllabus.

Americans with Disabilities Act:

If a student has an established disability as defined by the Americans with Disabilities Act (ADAAA) and would like to request an accommodation, that student should please contact me as soon as possible. Any student requesting accommodations should first contact Disability Support Services at 940-397-4140 in room 168Clark Student Center to document and coordinate reasonable accommodations if you have not already done so.

Syllabus Change Policy:

This syllabus is a guide for the course—not a "contract"—and is subject to change. Syllabus changes will be communicated via D2L. I'll provide a minimum of 48 hours notice before the relevant change takes place if at all possible.

Concealed Carry:

Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For more information regarding campus carry, please refer to the University's webpage at concealed carry If you have questions or concerns, please contact MSU Chief of Police Steven Callarman steven.callarman@msutexas.edu.

Course Schedule

Table 3:

Dates	Readings	Chapter Topics	Exams and Projects
August 25	Chap 1	Anatomy & Physiology	**Review Syllabus**
August 27	Chap 2 & 3	Ventilation, Pulmonary Function Measurements	
September 1			**Labor Day**
September 3	Joint Lecture with Dr. Fino Chap 4	Diffusion of Gases after exam	**EXAM 1** **Research Topic Due 11:59 pm via D**ropbox
September 8	Chap 5 & 6	Circulatory System/Oxygen and Carbon Dioxide Transport	
September 10			**Library trip for Research workshop at 8:45 in library**
September 11	10:30	Class Presentations	During Dr. Fino's class
September 15	Chap 7	Acid Base Balance and Regulation	
September 17			**EXAM 2** **Outline and Sources Due via dropbox at 11:59 p.m.**
September 22	Chap 8 & 9	Ventilation Perfusion Relationships/Control of Ventilation	
September 24			**MIDTERM EXAM** **Reference page due via dropbox by 11:59 p.m.**
October 27	Chap 12 & 13	Electrophysiology of the Heart/The Standard ECG System	**Research Paper Due via dropbox by 11:59 p.m.**
October 29	Chap 14	ECG Interpretations	
November 3		Practice ECG Interpretations	**LATTES 2-4 room 250**
November 5			**EXAM 3**
November 24	Chap 15/16	Hemodynamics/Renal failure	**DROP DATE**
December 1			**EXAM 4**
December 3		Final review	
December 9	0900	TUESDAY==========➔	**FINAL EXAM**