

MIDWESTERN STATE UNIVERSITY

COLLEGE OF HEALTH SCIENCES AND HUMAN SERVICES

RESPIRATORY CARE PROGRAM COURSE SYLLABUS

**COURSE TITLE**

Pulmonary Diagnostics

**COURSE NUMBER**

RESP 4403

# COURSE DESCRIPTION

This course is designed as an in-depth study of the standard testing methodologies employed to diagnose and monitor patients with cardiopulmonary disease. Emphasis is placed on the technical aspects as well as disease presentation. Topics include measurement and analysis of lung volumes, ventilation, pulmonary mechanics, gas distribution, diffusion testing, cardiac and pulmonary exercise testing, quality assurance, blood gas analysis and clinical assessment in the ICU.

**WEEKLY MEETING PATTERN**

Mon, Tues, Thurs 1pm-240pm Virtual

Office hours virtual Monday 2-4 Tuesday 1-4

**CREDITS**

3 credits

# COURSE INSTRUCTOR

Mary Sue Owen MS, RRT-NPS, ACCS, RPFT, AE-C

Office: 397-4654

Mary.owen@msutexas.edu

**OFFICE HOURS**

As posted, other hours by appointment Room 420F

**AUDIENCE**

Senior Respiratory Care Students

# GRADED ITEMS AND GRADE DETERMINATION Lecture Exams

Standard exams that may include multiple choice, short answer, fill in the blank, essay or Case Studies, designed to cover material from the lecture and text.

# Final Exam

Standard exams that may include multiple choice, short answer, fill in the blank, essay or Case Studies, designed to cover material from the lecture and text. I reserve the right to make this exam cumulative.

# GRADE DETERMINATION

|  |  |  |
| --- | --- | --- |
| Lecture Examinations |  | 70% |
| Final Examination |  | 20% |
| Tophat/homework |  | 10% |

# MISSED EXAM, LABORATORY REPORT OR OTHER GRADED ITEM POLICY

A 15% per day reduction in your grade will occur when an exam or graded item is not done on time, weekends and holidays included.

# APPROXIMATE GRADING SCALE

|  |  |
| --- | --- |
| >90% | A |
| 80-89% | B |
| 75-79% | C |
| 65-74% | D |
| <65 | F |

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

# ADA Compliance

In accordance with the law, MSU provides students with documented disabilities academic Accommodations. If you are a student with a disability, please contact me.

DISABILITY SUPPORT SERVICES

CLARK STUDENT CENTER, ROOM 168

PHONE: 397-4140

# OBJECTIVES

1. Students can differentiate between volume sensing and flow sensing spirometers, citing strengths and weaknesses of each design.
2. The student can explain the instrumentation required to perform basic spirometry, lung volume determination, and diffusion tests.
3. The student can list the indications for pulmonary diagnostic testing.
4. The student can identify expected changes in pulmonary diagnostic tests based on specific lung pathology.
5. When given a set of basic spirometric data, the student can identify normal and abnormal results.
6. The student can evaluate a lung volume study and determine whether the results indicate pulmonary obstruction or restriction.
7. The student will identify normal and abnormal diffusion study data and can explain challenges relative to the use of DLCO testing.
8. When evaluating arterial blood gas values, the student will correctly identify conditions relating to respiratory and metabolic dysfunction.
9. Students will evaluate exercise tests identifying anaerobic threshold, limitations to exercise based on de-conditioning, pulmonary and cardiac sources.
10. Students can list pulmonary diagnostic tests that help identify abnormal responses to increased carbon dioxide and decreased oxygen levels.
11. The student can identify common mistakes in quality assurance testing relating to pulmonary diagnostic equipment.
12. The student can identify the components of oxygen transport /clinical evaluation of oxygenation and their significance.
13. Recognize how the following can be used to evaluate tissue oxygen delivery and utilization: oxygen delivery, oxygen consumption, mixed venous oxygen tension, venous saturation, A/V content difference, O2 ER and blood lactate.

**LEARNING RESOURCES**

# REQUIRED TEXTS

Mottram, C.D. Manual of Pulmonary Function Testing, 11th Edition. Mosby, 2017.

Wilkins RL, Stoller James K, Kacmarek, Robert M, Egan’s Fundamentals of Respiratory Care, 12th Edition, Mosby, 2021

**LECTURE SCHEDULE**

|  |  |  |
| --- | --- | --- |
|  |  |  |
| AUG. 24 1-240PM | INTRO/WELCOME/INDICATIONS (CHAP 1) |  |
| AUG. 25 1-240PM | INDICATIONS/BASIC PATHOLOGY (CHAP 1) |  |
| AUG 27 1-240PM | PFT EQUIPMENT (CHAP 11) |  |
| OCT 12 1-240 | SPIROMETRY AND RELATED TESTS (CHAP 2) |  |
| OCT 13 1-240 | SPIROMETRY AND RELATED TESTS (CHAP 2) |  |
| OCT 15 1-240 | **EXAM 1** |  |
| OCT 19 1-240 | LUNG VOLUMES (CHAP 4) |  |

OCT 20 1-240 LUNG VOLUMES (CHAP 4)

OCT 22 1-240 VENTILATION AND CONTROL TESTS (CHAP 5)

OCT. 26 8-940AM DIFFUSION CAPACITY (CHAP 3)

OCT. 27 8-940AM DIFFUSION CAPACITY CONT.

OCT. 29 8-940AM CONT. AND REVIEW

NOV 2 8-940AM **EXAM 2**

NOV 3 8-940AM REVIEW EXAM

NOV 5 8-940AM BLOOD GAS AND RELATED (CHAP 6)

NOV. 9 8-940AM CONT

NOV. 10 8-940AM EXERCISE (CHAP 7)

NOV. 12 8-940AM EXERCISE CONT.

NOV. 16 8-940AM FINISH AND REVIEW

NOV. 17 8-940AM **EXAM 3**

NOV. 19 8-940AM SPECIALIZED TESTS (CHAP 9 & 10)

NOV. 23 8-940AM CONT.

NOV. 24 8-940AM QUALITY ASSURANCE (CHAP 12)

NOV. 30 8-940AM ATS-ERS STANDARDS FOR PATIENT PERFORMANCE

DEC. 1 8-940AM **EXAM 4/ REVIEW FOR FINAL AFTER**

DEC. 3 8-940AM **Case Studies time to be determined by Dr. K**

DEC. 7 0900AM FINAL EXAM

Top Hat

We will be using the Top Hat ( www.tophat.com ) classroom response

system in class. You will be able to submit answers to in-class questions

using Apple or Android smartphones and tablets, laptops, or through text

message. Additionally, we will be using the custom-built interactive material

within Top Hat for this class. An email invitation will be sent to you by email closer to the first day of class, but if don't receive this email, you can register by simply visiting our course website: https://app.tophat.com/e/298344

Note: our Course Join Code is 298344. Top Hat will require a paid subscription, and a full breakdown of all subscription options available can be found here: www.tophat.com/pricing .Should you require assistance with Top Hat at any time, due to the fact that they require specific user information to troubleshoot these issues, please contact their Support Team directly by way of email ([support@tophat.com](mailto:support@tophat.com)),the in-app support button, or by calling 1-888-663-5491.