



Course Syllabus: Physics and Respiratory Care  
College of Health Sciences and Human Services  
RESP 3423 Section 101  
Fall Semester, August 28, 2023 – December 15, 2023

Contact Information

Instructor: Jessica Fino, Ed.D, RRT  
Office: Centennial Hall 420J  
Office hours: By appointment.  
Office phone: (940) 397-4584  
E-mail: [Email for Jessica Fino](mailto:jessica.fino@msutx.edu)

Audience

Junior Respiratory Care Students  
3 Credit Course

Weekly Meeting Pattern

Tuesdays: 10:30 am – 12:50 pm  
Thursdays: 10:30 am – 12:50 pm

Course Description

The focus of this lecture course is on application of basic principles of physics to the respiratory and cardiovascular systems. Emphasis is placed on the physics of fluids and gases. Topics include force, work, pressure, Bernoulli's theorem, Venturi tubes, flow patterns, viscosity, gas laws, diffusion, surface tension, gas solubility, and the equation of motion applied to the respiratory system.

Course Objectives

Course objectives include:

1. Describe how substances undergo change of state.
2. Describe how water vapor capacity, absolute humidity and relative humidity are related.
3. Describe how to predict gas behavior under changing conditions.
4. Describe the principles that govern the flow of fluids.

5. Describe the difference between monitoring and analysis of gas exchange.
6. Apply concepts associated with monitoring and analysis to gas analysis in the clinical setting.
7. List the major categories of pulmonary function testing.
8. State the primary purpose of pulmonary function testing.
9. Describe the pathophysiologic patterns associated with obstructive and restrictive lung disease.
10. Describe the physiologic functions provided by ventilation.

#### Textbook & Instructional Materials

Egan's Fundamentals of Respiratory Care, 12<sup>th</sup> edition, ISBN 9780323511124

Top Hat Subscription- <https://app.tophat.com/e/886649>

Note: our Course Join Code is 886649.

#### Student Handbook

Refer to: [Student Handbook 2023-24](#)

#### Academic Misconduct Policy & Procedures

Academic Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individual's to whom credit is given). Additional guidelines on procedures in these matters may be found in the Office of Student Conduct. Research papers and projects must be original work for each course assignment. The faculty will not accept a submission that has been or is being submitted for another course. No Exceptions!

#### Assignment Grading

| Assignments              | Percentage of Total Grade |
|--------------------------|---------------------------|
| Supplemental Assignments | 10%                       |
| Exams                    | 65%                       |
| Final                    | 25%                       |

#### Grading Scale

| Letter Grade | Percentage Grade |
|--------------|------------------|
| A            | 90-100%          |
| B            | 80-89%           |

| Letter Grade | Percentage Grade |
|--------------|------------------|
| C            | 75-79%           |
| D            | 70-74%           |
| F            | Less than 69%    |

A minimum grade of 75, or a C, is required in all respiratory courses. All assignments must be completed by 11:59pm on the due date.

#### Attendance

Regular class attendance is required. 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 or 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. Please refer to the MSU Student Handbook for more information or the Respiratory Care Student Conduct Guidelines for Clinical Laboratories.

#### Supplemental Assignments

Quizzes, homework assignments and projects will be assigned throughout the semester as needed to reinforce concepts introduced in the classroom.

#### Exams

The three unit exams will cover material discussed in class; the content will be derived from Egan's 12th ed. All exams are computerized and will require the student to have access to a computer for use during class time. Upon availability, arrangements to utilize a computer lab on campus will be made prior to exam date and announced by the instructor.

#### Final Exam

The final examination will be comprehensive and the same format as the lecture exams. The final exam is worth 25% of your overall grade.

#### Late or Missed Assignments

Anything not completed and handed in on time will be subjected to a 20% per day penalty (weekends and holidays included). No exceptions! Missed labs or class days are not encouraged and students will be held accountable for all material covered during absences. Faculty members are not responsible for helping a student "make up" lab work. When possible arrangements should be made prior to the due date.

#### Important Dates

Last Day to drop with a grade of "W:" October 30, 2023.

Refer to: [Drops, Withdrawals & Void](#)

### Desire-to-Learn (D2L)

Extensive use of the MSU D2L program is a part of this course. Each student is expected to be familiar with this program as it provides a primary source of communication regarding assignments, examination materials, and general course information. You can log into [D2L](#) through the MSU Homepage. If you experience difficulties, please contact the technicians listed for the program or contact your instructor.

### Top Hat

We will be using the Top Hat ([www.tophat.com](http://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. Your overall performance and participation in class using Top Hat will be monitored. 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 listed above using the join code. Top Hat will require a paid subscription, and a full breakdown of all subscription options available can be found here: [www.tophat.com/pricing](http://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.

### Change of Schedule

A student dropping a course (but not withdrawing from the University) within the first 12 class days of a regular semester or the first four class days of a summer semester is eligible for a 100% refund of applicable tuition and fees. Dates are published in the Schedule of Classes each semester.

### Refund and Repayment Policy

A student who withdraws or is administratively withdrawn from Midwestern State University (MSU) may be eligible to receive a refund for all or a portion of the tuition, fees and room/board charges that were paid to MSU for the semester. HOWEVER, if the student received financial aid (federal/state/institutional grants, loans and/or scholarships), all or a portion of the refund may be returned to the financial aid programs. As described below, two formulas (federal and state) exists in determining the amount of the refund. (Examples of each refund calculation will be made available upon request).

### Services for Students With Disabilities

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring

accommodations should make application for such assistance through Disability Support Services, located in the Clark Student Center, Room 168, (940) 397-4140. Current documentation of a disability will be required in order to provide appropriate services, and each request will be individually reviewed. For more details, please go to [Disabilities Office Link](#).

#### College Policies

Campus Carry Rules/Policies

Refer to: [Campus Carry Rules and Policies](#)

#### Alcohol and Drug Policy

To comply with the Drug Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State are informed that strictly enforced policies are in place which prohibits the unlawful possession, use or distribution of any illicit drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state and federal law for any offenses involving illicit drugs on University property or at University-sponsored activities.

#### Grade Appeal Process

Students who wish to appeal a grade should consult the Midwestern State University [Undergraduate Catalog](#)

#### Schedule Changes

I will take every measure possible to adhere to the following course schedule. However, this schedule is subject to change due to university requirements or COVID-19 precautions. You will be notified via email and the course news in D2L if any changes are anticipated.

## Course Schedule

| Date            | Classroom Assignments                                   | Text/ Assignments |
|-----------------|---|-------------------|
| <b>Aug. 29</b>  | Syllabus Review<br>Physical Principles/States of Matter | Egan's Ch. 6      |
| <b>Aug. 31</b>  | Change of State   | Egan's Ch. 6      |
| <b>Sept. 5</b>  | <b>Exam #1 (Ch.6)</b>                                   |                   |
| <b>Sept. 7</b>  | Gas Behavior/Property of Gases                          | Egan's Ch. 6      |
| <b>Sept. 12</b> | Gas Behavior Review/Fluid Dynamics                      | Egan's Ch. 6      |
| <b>Sept. 14</b> | Presentation of Gas Laws                                |                   |
| <b>Sept. 19</b> | <b>Exam #2 (Ch. 6, Gas Laws)</b>                        |                   |
| <b>Sept. 21</b> | Laboratory Data   | Egan's Ch. 17     |
| <b>Sept. 26</b> | Chest Tubes   | Egan's Ch. 21     |
| <b>Sept 28</b>  | Important Test and Procedures                           |                   |
| <b>Oct. 31</b>  | High Flow Oxygen Therapy                                |                   |
| <b>Nov. 2</b>   | <b>Exam #3 (17, 21, + tests &amp; HF)</b>               |                   |
| <b>Nov. 7</b>   | Analysis and Monitoring<br>Oximetry                     | Egan's Ch. 19     |
| <b>Nov. 9</b>   | ABG WORKDAY   |                   |

| Date             | Classroom Assignments   | Text/ Assignments |
|------------------|-------------------------|-------------------|
| <b>Nov. 21</b>   | <b>Exam # 4 (Ch 19)</b> | Egan's Ch. 19     |
| <b>Dec. 5</b>    | Review                  |                   |
| <b>Dec. 7</b>    | <b>Case Studies</b>     |                   |
| <b>Dec 12-14</b> | <b>Final Exams</b>      |                   |