



## **RESP 118 Diagnostic & Therapeutic Techniques Section Name Section Credit Hours Credits** **Syllabus**

### Course Information

**Meeting times and location:** section meeting\_times section location

**Catalog description:** This course introduces basic cardiopulmonary diagnostic testing, specifically arterial blood gas (ABG) analysis and pulmonary function testing (PFT). It also covers the various therapeutic modalities used in respiratory care for humidity and aerosol therapy, lung expansion therapy, bronchial hygiene, chest physiotherapy and airway clearance.

**Prerequisites:** Take RESP-110, RESP-112, and RESP-114. Minimum grade required: "C" Take RESP-116 and BIOL-253

**Terms offered:** Spring Only

**Section-specific Course Description:**

### Course Level Objectives

Program Learning Outcomes (PLO)

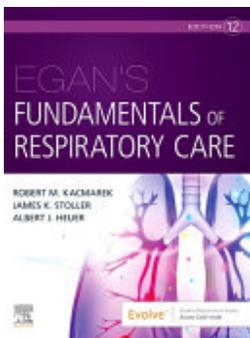
1. NBRC Pass Graduates will be prepared to take and pass the Registered Respiratory Therapist (RRT) Examination administered by the National Board for Respiratory Care (NBRC).
2. Clinical Competency Graduates demonstrate the ability to apply clinical skills and demonstrate clinical competency necessary to meet the needs of the patient and the community as performed by registered respiratory therapists.
3. Critical Thinking Skills Graduates demonstrate the ability to apply critical thinking skills consistent with the NBRC's "Recall, application and analysis" objectives for proficiency at the entry and advanced practitioner levels.
4. Patient Advocacy Graduates are proactive and espouse in the advocacy of patients.

5. Ethical and Professional Behavior Graduates demonstrates ethical and professional behavior that is consistent with professional and community expectations in both the clinical and nonclinical setting.
6. Communication Skills Graduates demonstrate effective skills in verbal and written communication as a healthcare professional.

#### Course Learning Objectives

1. Describe the importance of pulmonary function testing and its different diagnostic measurements.
2. Demonstrate the pulmonary function testing (PFT) procedure, and interpret PFT results.
3. Describe the importance of arterial blood gas analysis (ABG) and its different diagnostic measurements.
4. Demonstrate the ABG procedure, and interpret ABG results.
5. Discuss the clinical applications of humidity therapy.
6. Calculate values for the different terms in humidity.
7. Explain the principles of operation of the different types of humidifiers.
8. Describe the principles of aerosol therapy.
9. Describe and demonstrate the principles, clinical applications and troubleshooting of nebulizers.
10. Explain how lung expansion therapy works.
11. Describe bronchial hygiene therapy.
12. Demonstrate airway clearance techniques

## Required Texts and/or Materials



### **Egan's Fundamentals of Respiratory Care**

9780323811217

Robert M. Kacmarek, Robert M. Kacmarek, PhD, RRT, FAARC, James K. Stoller, James K. Stoller, MD, MS, AI Heuer

Mosby

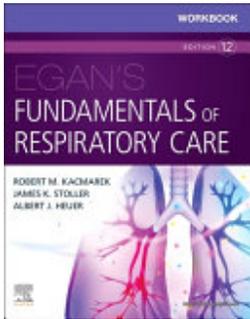
2020-03-09

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### **Basic Clinical Lab Competencies for Respiratory Care**

978-1-4354-5365-4

Gary C. White  
5th edition



**Workbook for Egan's Fundamentals of Respiratory Care**

9780323553667

Robert M. Kacmarek

Mosby

2020-03-01

## Required Technology and Software

- Canvas
- Chrome, Safari, or Firefox

## Course Requirements

Upon successful completion of the course, the student will be able to:

1. Describe the importance of pulmonary function testing and its different diagnostic measurements:
  - A. Describe the lung volumes and capacities.
  - B. Identify predicted values for volumes and capacities.
  - C. Measure and describe common flow rate measurements.
2. Demonstrate the PFT procedure and interpret PFT results:
  - A. Demonstrate ability to operate spirometry to measure flows, capacities, and volumes.
  - B. Interpret PFT results to determine obstructive, restrictive or mixed abnormalities.
3. Describe the importance of arterial blood gas analysis (ABG) and its different diagnostic measurements:
  - A. Explain the purpose of arterial blood sampling and its indications.
  - B. Explain how to assess oxygenation.
  - C. Describe the assessment of acid base balance.
  - D. Describe the process of compensation as it relates to acid base disorders.
4. Demonstrate the ABG procedure, and interpret ABG results:

- A. Describe the process of arterial sampling.
  - B. Identify the guidelines for running an ABG sample.
  - C. Give normal values used to interpret blood gas measurements.
  - D. Interpret simple and mixed acid base disorders.
  - E. Describe the running of ABG analyzers to include the use of co-oximeters.
5. Discuss the clinical applications of humidity therapy:
- A. Differentiate between humidity and aerosol.
  - B. List the indications and hazards of humidity therapy.
  - C. List and discuss the three factors influencing humidifier efficiency.
6. Calculate values for each of the following terms:
- A. Relative humidity
  - B. Absolute humidity
  - C. Body humidity
  - D. Humidity deficit
7. Explain the principles of operation for the following types of humidifiers:
- A. Bubble jets
  - B. Laminar diffusers
  - C. Cascades
  - D. Wicks
  - E. Heat and Moisture Exchange (HME)
8. Describe the principles of aerosol therapy:
- A. State the physical characteristics of aerosols.
  - B. List the four factors influencing aerosol deposition.
  - C. List the indications for aerosol therapy.
  - D. List and discuss the hazards of aerosol therapy.
  - E. Discuss the AARC clinical practice guidelines.
9. Describe and demonstrate the principles, clinical applications and troubleshooting of the following:
- A. Small volume nebulizers
  - B. Large volume nebulizers
  - C. Metered Dose Inhalers
  - D. Dry powder inhalers

E. Ultrasonic nebulizers

10. Explain how lung expansion works:

A. Identify the clinical findings seen in atelectasis.

B. Determine the primary responsibilities in planning, implementing, and evaluating lung expansion therapy.

11. Describe bronchial hygiene therapy:

A. Assess the need for bronchial hygiene therapy.

B. Briefly describe each of the following techniques and their contraindications:

a. postural drainage

b. percussion

c. forced expiratory techniques

d. autogenic drainage

e. positive expiratory pressure

f. high frequency chest wall compression

g. flutter valve therapy

h. directed cough

12. Demonstrate airway clearance techniques:

A. Review thoracic landmarks and segmental anatomy.

B. Identify all positions used for segmental lung drainage.

C. Select and perform various bronchial hygiene therapies.

D. Describe how to monitor and evaluate a patient's response to bronchial hygiene therapy.

## Other Classroom Policies and Expectations

### Cell Phones

1. All cell phones are to remain OFF or on the vibrate mode during class times, AND PUT AWAY.

2. If you are expecting a phone call during class time you will need to inform the instructor before the class starts. This is a disruption to the class period and to your fellow students.

3. Cell phones are NEVER to be answered in the classroom during class time and absolutely no texting during class time. If it is determined that a student has been using his/her cell phone during instruction the student will receive a zero for assignments/quizzes/competencies which are completed/due during that class period.

4. Use of electronic recording devices during classroom time: You must receive permission from the instructor to use electronic recording devices, the use of tape recorders and other recording devices will be at the instructor's discretion.

### Social Media Websites

Any information gleaned from class content is not to be posted on any social media website or other internet sources. Class information is intended for use by respiratory therapy students only.

## Grading

Final grades are calculated based on the following...

Category	Weight
Attendance	10%
Student Acceptance	5%
Lab competency	10%
Assignments	15%
Quiz	15%
Lab Practicum Competency Examination	20%
Final	20%

## Course Time Commitment

On a weekly basis, on average, a student should expect to commit a minimum of three hours (on your own) for every hour you are in class to successfully complete course requirements. This includes reading, studying, making notes, working on assignments, etc.

## Canvas Participation and Expectations

Students need to log into Canvas on a daily basis. Please set up your Canvas student account to receive emails or class messages on your personal email account or through your cell phone.

## Participation and Attendance Policy

As is stated in the Respiratory Therapy Student Handbook-- The individual instructors may require more stringent attendance requirements. Please read the following which outlines the Attendance requirements for this course.

1. Punctual attendance at all scheduled classes and/or events is expected.
2. Because of the course content, lab, and clinical experience, attendance is mandatory. All class/lab/clinical hours must be completed as scheduled.
3. It is the responsibility of the student to notify the instructor regarding class/lab/clinical absence prior to the scheduled class/lab/clinical.
4. Absences: In the event of an absence, the student must communicate with the instructor before the scheduled class time.
5. Two or more absences and/or three tardy/late arrivals will result in counseling with the instructor, the program director, the dean of health sciences and may result in suspension and/or possible dismissal from the program.
6. In addition, more than 2 absences are defined as excessive and will result in a minimum of a 10% deduction in the final grade.
7. In regards to tardiness (>10 min late) the final grade will be reduced 1% after the second tardiness and for each subsequent tardy.
8. Leaving more than 15 minutes early without prior approval by the instructor will result in tardiness.
9. Any absences over six may result in dismissal from the class.
10. Three NO CALL/NO SHOW absences may result in immediate dismissal from the class.
11. Individual instructors may require more stringent attendance requirements. Please read the appropriate course guideline

## Instructor Response Times & Regular Interaction Expectations

The instructor will respond to your emails and phone calls within a 24 hour period during the week and a 48 hour period over the weekend. Grades are typically entered for weekly assignments during the week the assignment is due. Grades are entered for written papers or special assignments within a 7-14 day period. Typically exams are corrected as each one is completed in Canvas. If an exam has essay-style questions on it the questions will be graded within a 24-48 hour period following the completion of the exam.

## Key Dates to Remember

[Full Academic Calendar](#)

## Program Handbook

[RT Student Handbook](#)

[RT Student Clinical Practicum Guide](#)

## Technical Support

Technical support is available through the San Juan College Help Desk 24/7/365. The help desk can be reached at 505-566-3266 or by creating a ticket at [San Juan College Help Desk](#).

For password reset and Canvas support, visit the [Student Technology Guide](#) website.

## Accessibility/Privacy Policies for all Technology Tools Used

[Accessibility/Privacy Policies for all Technology Tools Used](#)

## Student Support

At San Juan College, we are committed to supporting your academic success and overall well-being. We recognize that college life can be challenging and stressful, impacting both learning and personal health. We are here to help you succeed.

### **Academic Support and Resources**

We provide a range of academic support services to help you stay on track on your educational journey. Free resources include tutoring, computer loans, life skills workshops, and so much more. Visit the [Academic Support and Resources](#) webpage to learn more about support and resources available through Academic Advising, the Tutoring Center, the Student Resource Center (formerly Student Achievement Center) and the Testing Center.

### **Student Support and Resources**

If you or someone you know could benefit from counseling, accessibility services, career exploration, veteran transitional assistance, or any of our other support services, visit the [Student Support and Resources](#) webpage where you'll find detailed information about various resources available to you as an SJC student.

We encourage you to take advantage of these free resources to enhance your college experience and ensure your success.

## College Policies and Resources for Current Students

The [Student Handbook](#) provides information on student support, student organizations, and student conduct policies at San Juan College.

The San Juan College catalog outlines the [Academic Policies](#) students need to know.

## Healthy and Safe Practices for Being on Campus

We want a healthy and safe campus for students, faculty, staff, and guests.

### **Contagious diseases and your responsibility:**

If you have COVID-19 symptoms, fever, flu or even the common cold, you should stay home. Do not come to campus if you are feeling sick. Contact your instructor about missing class (and review your instructor's policies on missed or late work). Being sick does not necessarily excuse you from completing your work on time.

### **Safety on campus and your responsibility:**

If you are on campus and experience or witness an emergency, call 9-1-1 first and then the Department of Public Safety at 505-566-3333 (or just 3333 if calling from a campus phone).

When you are on campus, be aware of your surroundings. If you need an escort to your vehicle, call 505-566-4444 (DPS non-emergency line) or 505-215-3091 (officer on duty line).

The College will send information for campus emergencies through SJC AlertAware, email and the webpage. Stay informed and stay safe.

## Inclement Weather Information

Students will receive notification of class delays and cancellations due to inclement weather via the SJC AlertAware and SJC student email. Face-to-face classes will not meet in person; however, students

are advised to check with instructors about alternative meeting options, as some may choose to meet via zoom. Hybrid classes will meet as scheduled via zoom. For questions regarding your class delay or cancelation, please contact your instructor.

## Online Course Fee

Online Courses - San Juan College requires all online courses to include some form of assessment to demonstrate the mastery of course objectives. This could include exams, capstone projects, e-portfolios, presentations, final papers or other appropriate assessments. The use of a proctoring platform, plagiarism detection software or other method to ensure that assessments are completed by the enrolled student is required.

A course fee of \$5.00 is assessed for all online courses at San Juan College to cover the cost of the above services. Students who are required to take a proctored exam and choose to use a physical testing center outside the SJC Testing Center or SJC Disability Services will be responsible for the cost of using that center.