



INSTRUCTIONAL PACKAGE

RES 111
Pathophysiology

Effective Term
Fall 2024/Spring 2025/Summer 2025

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Part I: Course Information

Effective Term: Fall 2024/Spring 2025/Summer 2025

COURSE PREFIX: RES 111

COURSE TITLE: Pathophysiology

CONTACT HOURS: 2

CREDIT HOURS: 2

RATIONALE FOR THE COURSE:

RES 111 is a lecture course that will identify and describe the components of the patient assessment. In RES 111, you will evaluate patient clinical assessments and identify the lung disease associated with the patient. Students will also formulate the respiratory care treatment plan using SOAP notes and the proper respiratory modality commonly used for pulmonary diseases

COURSE DESCRIPTION:

This course is a study of the general principles and analyses of normal and diseased states.

PREREQUISITES/CO-REQUISITES:

General Education courses BIO 210, 211, 225, MAT 120, ENG 101, PSY 201, and HUM. Respiratory Care Program first semester courses RES 101. Required prerequisite courses must be completed with a grade of "C" or better.

***Online/Hybrid** courses require students to complete the [Distance Learning Orientation Video](#) prior to enrolling in an online course.

REQUIRED MATERIALS:

Please visit the [BOOKSTORE](#) online site for most current textbook information.

Enter the semester, course prefix, number and section when prompted and you will be linked to the correct textbook.

Des Jardins, T. and Burton, G.G. (2024). Clinical Manifestations & Assessment of Respiratory Diseases, 9th ed. Elsevier St. Louis, MO. ISBN# 9780323571501

Des Jardins, T. and Burton, G.G (2002). Case Studies to Accompany Clinical Manifestations & Assessment of Respiratory Diseases, 2nd ed. Elsevier St. Louis, MO. ISBN# 978-0323-010757
(optional)

TECHNICAL REQUIREMENTS:

Access to Desire2Learn (D2L), HGTC's learning management system (LMS) used for course materials.

Access to myHGTC portal for student self-services.

College email access – this is the college's primary official form of communication.

STUDENT IDENTIFICATION VERIFICATION:

Students enrolled in online courses will be required to participate in a minimum of one (1) proctored assignment and/or one (1) virtual event to support student identification verification. Please refer to your Instructor Information Sheet for information regarding this requirement.

CLASSROOM ETIQUETTE:

As a matter of courtesy to other students and your professor, please turn off cell phones and other communication/entertainment devices before class begins. If you are monitoring for an emergency, please notify your professor prior to class and switch cell phone ringers to vibrate.

It is recognized that personal communication devices, including smart phones, can play a fundamental role in both education and urgent personal connections (for example, a school calling about a sick child). For this reason, use of such devices is permitted in the classroom, with specific reservations:

1. Please set all devices to 'silent' or 'vibrate' during instructional time.
2. Use of devices during testing is NOT allowed.
3. Please limit use of devices to urgent personal connections and educational purposes directly related to the course material being discussed.
4. If you receive an urgent text/call during class that requires immediate attention, please quietly excuse yourself from the classroom to respond to the call.
5. Please refrain from using 'ear buds' or continually using the device as a learning distraction. Professor retains the right to disallow the use of such devices should the policy become a distraction.
6. When on experiential rotations, students are expected to abide by the policies of that institution.

PLAGIARISM & CHEATING:

Refer to the College catalog & Student handbook HGTC Handbook.

The student may be assigned a failing grade for the course or may be required by the professor to withdraw from the course and/or the respiratory care program. Such actions are deemed to be unprofessional behavior within this program and will not be tolerated.

NETIQUETTE: is the term commonly used to refer to conventions adopted by Internet users on the web, mailing lists, public forums, and in live chat focused on online communications etiquette. For more information regarding Netiquette expectations for distance learning courses, please visit [Online Netiquette](#).

Part II: Student Learning Outcomes

Module I

Material Covered: Patient Assessment

Patient Assessment

Physical Exam

ECG

Sputum, Bronchoscopy, Hematology and Thoracentesis

Assessments:

- Homework
- Quiz
- Test

Learning Outcomes:

1. List information gathered while interviewing a patient and taking their medical history.
2. Describe a successful interview sequence between a respiratory therapist and patient.
3. Identify & explain the 5 techniques of communication.
4. Identify normal values for vital signs and what will make them increase or decrease.
5. Identify the parts of a physical exam: Inspection, palpation, percussion and auscultation and what is evaluated with each part.
6. Identify and define that 10 different breathing patterns.
7. Identify/Describe the following physical and what they may indicate cyanosis, pallor, clubbing, peripheral edema, neck vein distention, jaundice, capillary refill
8. Identify types of chest abnormalities: Barrel Chested, Pectus Carinatum (pigeon breast), Pectus excavatum, Kyphosis, Scoliosis, and Kyphoscoliosis.
9. Define subcutaneous emphysema.
10. Identify the technique for tactile fremitus & possible causes of increase & decrease fremitus.
11. Describe the technique used for assessing chest expansion/ chest motion symmetry and possible causes for asymmetry movement.
12. Define percussion notes & causes: Resonance, flatness, dullness, tympany, hyperresonance
13. Identify parts of a stethoscope and know their primary functions.
14. Identify proper patient breathing instructions for listening to their breath sounds.
15. Describe/Identify normal and abnormal breath sounds and cause of abnormal sounds.
16. Define: voice resonance, egophony, and bronchophony
17. Identify normal values for vital signs and what will make them increase or decrease.
18. Identify normal & abnormal sputum characteristics & what is/has occurred when they change.
19. Define the following: sputum culture/sensitivity, gram stain, acid fast stain.
20. Identify normal lab values (CBC, Electrolytes)
21. Identify conditions that will cause normal lab values (CBC, Electrolytes) to be abnormal.
22. Describe ECG normal patterns and arrhythmias.
23. Intro to noninvasive hemodynamic monitoring and assessment and its association to respiratory diseases

Module II

Material Covered: ABG Assessment & Respiratory Failure

Blood Gas Assessment

Respiratory Failure

Assessments:

- Homework
- Quiz
- Test

Learning Outcomes:

1. Identify the normal & critical arterial & venous blood gas measurements.
2. Given an ABG result, interpret the acid base balance & oxygenation for an ABG sample.
3. Define Acute & Chronic.
4. Describe how acute changes on PaCO₂ affect pH and HCO₃ values.
5. Describe conditions needed to stimulate peripheral chemoreceptors to increase resp. rate?
6. Identify acute alveolar hyperventilation by listing ABG values and the most common cause.
7. Define acute ventilatory failure and list ABG values associated with acute ventilatory failure.
8. Identify the 2 reasons the anion gap is assessed in patients with metabolic acidosis.
9. Identify the most common cation and anion used to calculate the anion gap.
10. Define chronic vent failure and list ABG values associated with chronic ventilatory failure.
11. Identify & define 4 Major Common errors & causes associated with ABG measurements.
12. Define Respiratory Failure
13. Identify & define 6 major anatomic alterations of the lungs that can lead to respiratory failure.
14. Define the Respiratory Failure Type 1
15. Identify the respiratory disorders associated with Type 1 Hypoxemic Respiratory failure.
16. Identify the 3 primary pathophysiologic mechanisms of Hypoxemic Respiratory failure.
17. Define the hypercapnic respiratory failure Type 2 ventilatory failure.
18. Differentiate acute respiratory failure vs chronic respiratory failure.
19. Identify the 5 respiratory disorders associated with hypercapnic respiratory failure.
20. Identify & define 5 key clinical indicators of Hypercapnic Respiratory Failure.
21. Identify & define 5 key clinical indicators of Hypoxemic Respiratory Failure.

Module III

Material Covered: Obstructive Lung Diseases:

COPD
Asthma
Cystic Fibrosis
Bronchiectasis

Assessments:

- Homework
- Quiz
- Test

Learning Outcomes:

1. Define COPD, chronic bronchitis, and emphysema
2. Define the COPD definition given by Global Initiative for Chronic Obstructive Lung Disease.
3. Identify the etiology and risk factors associated with COPD.
4. Identify the relationship between COPD and Alpha1-Antitrypsin Deficiency
5. Identify cardiopulmonary clinical manifestations linked with chronic bronchitis & emphysema.
6. Define the BODE index and identify what it measures.

7. Identify the GOLD strategy, guidelines for the diagnosis, management & prevention of COPD.
8. Identify features distinguishing emphysema & chronic bronchitis (pink puffer vs blue bloater).
9. Identify the medications commonly used in the treatment and prevention of COPD.
10. Describe the role of national and international guidelines in the management of asthma.
11. Identify the etiology and risk factors associated with asthma.
12. Identify the cardiopulmonary clinical manifestations associated with asthma.
13. Identify the tools used to diagnose asthma and the challenges of diagnosing asthma.
14. Identify the GINA management and prevention strategy for asthma.
15. Identify the medications commonly used in the treatment and prevention of asthma.
16. Describe the anatomic alterations associated with bronchiectasis & the 3 Reid classifications.
17. Identify the etiology and risk factors associated with bronchiectasis.
18. Identify the strategy for the diagnosis, management and prevention of bronchiectasis.
19. Identify the medications commonly used in the treatment and prevention of bronchiectasis.
20. Describe the anatomic alterations associated with cystic fibrosis.
21. Identify the etiology and risk factors associated with cystic fibrosis.
22. Describe how the cystic fibrosis gene is inherited.
23. Identify the strategy for the diagnosis, management and prevention of cystic fibrosis.
24. Identify the medications commonly used in the treatment and prevention of cystic fibrosis.
25. Given a case scenario, identify the etiology, pathophysiology, clinical features, xrays and treatment plan for EACH of the disease states covered in this module.

Module IV

Material Covered: Pulmonary Diseases & Chest Trauma

Tuberculous
 Pulmonary Edema
 Pulmonary Emboli
 Flail Chest
 Pneumothorax
 Pleural Effusion

Assessments:

- Homework
- Quiz
- Test

Learning Outcomes

1. Describe the anatomic alterations associated with tuberculous.
2. Identify the etiology and risk factors associated with tuberculous.
3. Identify the cardiopulmonary clinical manifestations associated with tuberculous.
4. Identify the strategy for the diagnosis, management and prevention of tuberculous.
5. Describe the anatomic alterations associated with pulmonary edema.
6. Define cardiogenic and non-cardiogenic pulmonary edema.
7. Identify the etiology and risk factors associated with pulmonary edema.
8. Identify the etiology and risk factors associated with pulmonary emboli.
9. Identify the strategy for the diagnosis, management and prevention of pulmonary emboli.
10. Describe the anatomic alterations associated with flail chest.
11. Identify the etiology and risk factors associated with flail chest.

12. Identify the strategy for management of flail chest.
13. Describe the anatomic alterations associated with pneumothorax.
14. Identify the etiology and risk factors associated with pneumothorax.
15. Identify the strategy for management of pneumothorax.
16. Given a case scenario, identify the etiology, pathophysiology, clinical features, and treatment plan for EACH of the disease states covered in this module.
17. List anatomic alterations, clinical manifestations and xrays, and causes of Pleural Diseases.
18. List management for Pleural Diseases

Module V

Material Covered: Important Pulmonary Topics

Kyphoscoliosis

ARDS

Guillain-Barre

Myasthenia Gravis

Smoke Inhalation

Assessments:

- Homework
- Quiz
- Test

Learning Outcomes:

1. Describe the anatomic alterations associated with scoliosis.
2. Identify the etiology and risk factors associated with scoliosis.
3. Identify the strategy for management of scoliosis.
4. Describe the anatomic alterations associated with ARDS
5. Identify the etiology and risk factors associated with ARDS
6. Identify the strategy for management of ARDS
7. Describe the anatomic alterations associated with Gillian Barre`
8. Identify the etiology and risk factors associated with Gillian Barre`
9. Identify the strategy for management of Gillian Barre`
10. Describe the anatomic alterations associated with Myasthenia Gravis
11. Identify the etiology and risk factors associated with Myasthenia Gravis
12. Identify the strategy for management of Myasthenia Gravis
13. Describe the anatomic alterations associated with smoke inhalation
14. Identify the etiology and risk factors associated with smoke inhalation
15. Identify the strategy for management of smoke inhalation
16. Identify xrays and case studies for each disease state

Given a case scenario, identify the etiology, pathophysiology, clinical features, and treatment plan for EACH of the disease states covered in this module.

Part III: Grading and Assessment

EVALUATION OF REQUIRED COURSE MEASURES/ARTIFACTS*:

Students' performance will be assessed and the weight associated with the various measures/artifacts are listed below.

EVALUATION*

Homework/Quizzes/Projects	15%
Test	60%
Final Exam	25%
	100%

****Students, for the specific number and type of evaluations, please refer to the Instructor's Course Information Sheet.***

GRADING SYSTEM:

State the College's or departmental grading system as delineated in the Catalog. Please note the College adheres to a 10-point grading scale A = 100 – 90, B = 89- 80, C = 79 – 70, D = 69 – 60, F = 59 and below. You must have your Dean's approval if changes in the scale are made.

Grades earned in courses impact academic progression and financial aid status. Before withdrawing from a course, be sure to talk with your instructor and financial aid counselor about the implications of that course of action. Ds, Fs, Ws, WFs and Is also negatively impact academic progression and financial aid status.

The Add/Drop Period is the first 5 days of the semester for **full term** classes. Add/Drop periods are shorter for accelerated format courses. Please refer to the [academic calendar](#) for deadlines for add/drop. You must attend at least one meeting of all of your classes during that period. If you do not, you will be dropped from the course(s) and your Financial Aid will be reduced accordingly.

GRADING SCALE:

100 - 90 =	A
89 - 80 =	B
79 - 75 =	C
74 - 69 =	D
68 - 0 =	F

LATE ASSIGNMENTS:

1. A maximum of one (1) scheduled exam may be made up at the discretion of the course instructor. Any subsequently missed exams will receive a grade of 0.
2. Makeup examinations will be taken in the testing center on campus or a location designated by the instructor.
3. To find out more about proctoring services, please visit the [Online Testing](#) section of the HGTC's Testing Center webpage.
4. All missed exams will incur a 10% overall deduction unless medical documentation is provided.
5. Late Homework assignments will have a deduction of ten points of the total assignment grade. Quizzes will not be accepted late.

Homework assignments will not be accepted after 5 days of the due date. The assignment will close, and students will not have any further opportunities to submit.

Part IV: Attendance

Horry-Georgetown Technical College maintains a general attendance policy requiring students to be present for a minimum of 80 percent (80%) of their classes in order to receive credit for any course. Due to the varied nature of courses taught at the college, some faculty may require up to 90 percent (90%) attendance. Pursuant to 34 Code of Federal Regulations 228.22 - Return to Title IV Funds, once a student has missed over 20% of the course or has missed two (2) consecutive weeks, the faculty is obligated to withdraw the student and a student may not be permitted to reenroll. **Instructors define absentee limits for their class at the beginning of each term; please refer to the Instructor Course Information Sheet.**

For online and hybrid courses, check your Instructor's Course Information Sheet for any required on-site meeting times. Please note, instructors may require tests to be taken at approved testing sites, and if you use a testing center other than those provided by HGTC, the center may charge a fee for its services.

The Respiratory Care Program requires a 90% attendance rate. Students who miss more than 90% by either arriving late, leaving early or being absent risk being removed from the program. Please see Student handbook for more information.

Part V: Student Resources



THE STUDENT SUCCESS AND TUTORING CENTER (SSTC):

The SSTC offers to all students the following **free** resources:

1. **Academic tutors** for most subject areas, **Writing Center support**, and **college success skills**.
2. Online **tutoring** and academic support resources.
3. Professional and interpersonal communication **coaching** in the EPIC Labs.

Visit the [Student Success & Tutoring Center](#) website for more information. To schedule tutoring, contact the SSTC at ssc@hgtc.edu or self-schedule in the Penji iOS/Android app or at www.penjiapp.com. Email ssc@hgtc.edu or call SSTC Conway, 349-7872; SSTC Grand Strand, 477-2113; and SSTC Georgetown, 520-1455, or go to the [Online Resource Center](#) to access on-demand resources.



STUDENT INFORMATION CENTER: TECH Central

TECH Central offers to all students the following free resources:

1. **Getting around HGTC:** General information and guidance for enrollment, financial aid, registration, and payment plan support!
2. Use the [Online Resource Center \(ORC\)](#) including Office 365 support, password resets, and username information.
3. **In-person workshops, online tutorials and more services** are available in Desire2Learn, Student Portal, Degree Works, and Office 365.
4. **Chat with our staff on TECH Talk**, our live chat service. TECH Talk can be accessed on the student portal and on TECH Central's website, or by texting questions to (843) 375-8552.



HGTC LIBRARY:

Each campus location has a library where HGTC students, faculty, and staff may check out materials with their HGTC ID. All three HGTC campus libraries are equipped with computers to support academic research and related school work; printing is available as well. Visit the [Library](#) website for more information or call (843) 349-5268.

STUDENT TESTING:

Testing in an **online/hybrid** course and in **make-up exam** situations may be accomplished in a variety of ways:

- Test administered within D2L.
- Test administered in writing on paper.
- Test administered through Publisher Platforms (which may have a fee associated with the usage)

Furthermore, tests may have time limits and/or require a proctor.

Proctoring can be accomplished either face-to-face at an approved site or online through our online proctoring service. To find out more about proctoring services, please visit the [Online Testing](#) section of the HGTC's Testing Center webpage.

The **Instructor Information Sheet** will have more details on test requirements for your course.

DISABILITY SERVICES:

HGTC is committed to providing an accessible environment for students with disabilities. Inquiries may be directed to HGTC's [Accessibility and Disability Service webpage](#). The Accessibility and Disability Services staff will review documentation of the student's disability and, in a confidential setting with the student, engage in an interactive process to develop an educational accommodation plan.

Note: It is the student's responsibility to self-identify as needing accommodations and to provide acceptable documentation. After a student has self-identified and submitted documentation of a disability, accommodations may be determined, accepted, and provided. Students will need to reach out to the Accessibility and Disability Services staff each semester to renew their accommodations.

COUNSELING SERVICES:

HGTC Counseling Services strives to optimize student success through managing personal and academic concerns that may interfere with achieving educational goals. Staff are available to every student for assistance and guidance on personal matters, academic concerns and other areas of concern. HGTC offers free in-person and telehealth counseling services to students. For more information about counseling services, please reach out to counseling@hgtc.edu or visit the website the [Counseling Services webpage](#).

STATEMENT OF EQUAL OPPORTUNITY/NON-DISCRIMINATION STATEMENT:

Horry-Georgetown Technical College shall not discriminate in employment or personnel decisions or in student admissions or in student decisions, or in all other segments of the College community on the basis of race, color, sex, national or ethnic origin, age, religion, disability, marital or family status, veteran status, political ideas, sexual orientation, gender identity, or pregnancy, childbirth, or related medical conditions, including, but not limited to, lactation, in the educational programs and activities which it operates, and the college is prohibited from discrimination in such manner by applicable laws. Practices and requirements for nondiscrimination extend to the enrollment of students in programs and activities of the College and employment by the College.

All inquiries regarding the federal laws as they relate to discrimination on the basis of sex may be directed to Tamatha Sells, Title IX Coordinator, Horry-Georgetown Technical College, Building 1100C, Room 107B, 2050 Hwy 501 E, PO Box 261966, Conway, SC 29528-6066, 843-349-5218, tamatha.sells@hgtc.edu or to the US Department of Education Office of Civil Rights. (Telephone: 800-421-3481/Email: OCR@ed.gov).

Other employee and applicant inquiries concerning the federal laws and their application to the College may be directed to Jacquelyne Snyder, Vice President, Human Resources and Employee Relations & the College's Affirmative Action/Equal

Opportunity Officer, Horry-Georgetown Technical College, Building 200C, Room 205B, 2050 Hwy 501 E, PO Box 261966, Conway, SC 29528-6066, 843-349-5212, jacquelyne.snyder@hgtc.edu.

Other student and prospective student inquiries concerning the federal laws and their application to the College or any student decision may be directed to Dr. Melissa Batten, Vice President, Student Affairs, Section 504 & Title II Coordinator Horry-Georgetown Technical College, Building 1100C, Room 107A, 2050 Hwy 501 E, PO Box 261966, Conway, SC 29528-6066, 843-349-5228, melissa.batten@hgtc.edu.

TITLE IX REQUIREMENTS:

Title IX of the Education Amendments of 1972 protects students, employees, applicants for admission and employment, and other persons from all forms of sex discrimination.

HGTC prohibits the offenses of domestic violence, dating violence, sexual assault, and stalking and will provide students, faculty, and staff with necessary information regarding prevention, policies, procedures, and resources.

Any student, or other member of the college community, who believes that they have been a victim of sexual harassment, domestic violence, dating violence, sexual assault, or stalking may file a report with the college's Title IX Coordinator or campus law enforcement*.

*Faculty and Staff are required to report these incidents to the Title IX Coordinator when involving students. The only HGTC employees exempt from mandatory reporting are licensed mental health professionals (only as part of their job description such as counseling services).

For more information, contact Tamatha Sells, Title IX Coordinator, Conway Campus, Building 1100C, Room 107B, 843-349-5218, tamatha.sells@hgtc.edu.

PREGNANCY ACCOMMODATIONS

Under Title IX, colleges must not exclude a pregnant student from participating in any part of an educational program. Horry-Georgetown Technical College is committed to ensuring that pregnant students receive reasonable accommodations to ensure access to our educational programs.

Students should advise the Title IX Coordinator of a potential need for accommodations as soon as they know they are pregnant. It is extremely important that communication between student, instructors, and the Title IX Coordinator begin as soon as possible. Each situation is unique and will be addressed individually.

Title IX accommodations DO NOT apply to Financial Aid. Financial Aid regulations do not give the College any discretion in terms of Financial Aid eligibility.

Certain educational programs may have strict certification requirements or requirements mandated by outside regulatory agencies. Therefore, in some programs, the application of Title IX accommodations may be limited.

To request pregnancy accommodations, please complete the [**Pregnancy Intake Form**](#).