

# Department of Respiratory Care

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## DEGREE PROGRAM OFFERED

Bachelor of Science in Respiratory Care (BSRC), major in  
Respiratory Care

The Bachelor of Science in Respiratory Care Program prepares students to practice as respiratory care professionals and take their place as a key healthcare team member. Skilled in assessing patients with breathing disorders in the emergency room, intensive care units and many other areas in healthcare facilities, respiratory therapists work directly with physicians on newborn, pediatric or adult patients to analyze oxygen levels and breathing difficulty. Therapists administer medications to relieve breathing distress, provide pulmonary/lung therapies, and conduct lung diagnostics for all ages. Graduates find employment in many settings such as hospitals, pulmonary rehabilitation clinics, doctors offices, sleep labs, homecare, and air-life transport teams working with patients in the emergency room, newborn/pediatric/adult intensive care units, and many other areas.

Respiratory care (RC) majors take classes on the San Marcos campus and gain clinical experience in area hospitals. Students successfully admitted to the program must complete the sequenced curriculum within the cohort group. Individuals taking core courses prior to applying for admission to the RC program should contact the College of Health Professions' Advising Office. Students completing an associate degree in RC from another university or college are eligible to apply for admission to the BSRC Program at Texas State for bachelor degree completion. For information on this option, see the department chair. The BSRC Program is accredited by the Commission on Accreditation for Respiratory Care (CoARC) and qualifies graduates to take national board credentialing exams offered by the National Board for Respiratory Care immediately upon completion.

The department also offers a graduate certificate in Polysomnographic Technology (sleep studies) at the graduate level that is fully accredited by CoARC and qualifies individuals to sit for national board credentialing exams immediately upon completion. The polysomnographic (PSG) graduate certificate is comprised of six courses (15 credit hours) with three courses offered each fall and spring. Individuals credentialed in PSG provide diagnostic and therapeutic treatment for those suffering from sleep disorders such as obstructive sleep apnea, insomnia, narcolepsy, and other conditions.

Admission for the Polysomnographic Technology certificate is granted each summer for a cohort starting in the fall. Please refer to the Graduate catalog for admission requirements and course descriptions.

## Admission Process

Application for admission to the RC program must be made to the RC department in addition to regular university admission procedures. All applicants must have an overall GPA of 2.50 to apply. **It is highly recommended that individuals interested in applying for the RC program complete RC 2213 prior to application.** Admission is competitive and enrollment is limited depending on student/faculty ratios in the clinical phase of the program. All courses must be taken in sequence and completed with a grade of C or higher in order to progress to the next semester in the curriculum. Due to performance standards of the profession, students must meet specific ADA standards in accordance with physical and emotional requirements of the academic program in order to qualify for admission.

## Liability Insurance

1. Students who participate in the clinical portion of the respiratory care program are required to purchase liability insurance, or demonstrate proof that they are insured.
2. Students may obtain information on liability insurance from the departmental office.

## Immunization Requirements

It is a policy of the College of Health Professions that each student must provide the College Health Report completed by a physician, and must complete specific immunizations before being placed in a clinical or internship assignment. Information on these requirements and forms may be obtained through the departmental office.

## Background Checks and Drug Screening

As a condition for placement in some professional practice sites, all students are required to have a background check and/or drug screening to meet requirements individual sites. Information on the drug screening process will be provided by the department. Previous misdemeanor or felony convictions under various titles of the Texas Penal Code may affect eligibility for state respiratory care practitioner license status following graduation and may affect admission consideration.

## Program Progression

Successful program progression requires students to complete each semester in a lock-step sequence with a grade of "C" or higher in all RC courses. According to departmental policy, students with a grade of less than a "C" in a RC course will be ineligible to continue the program and must reapply to the program the following year. To be considered for program readmission, all original program admission criteria must be met. If readmitted, an assessment of clinical skills will be required to determine appropriate clinical placement in the curriculum sequence.

## Graduation

Requirements for BSRC completion and graduation include a Texas State GPA of 2.0 with a RC major GPA of 2.25.

**Bachelor of Science in Respiratory Care (BSRC)**  
**Major in Respiratory Care**  
**Minimum required: 124 semester hours**

**General Requirements:**

1. Any student who did not complete at least two years of the same foreign language in high school is required to take 6-8 hours of the same foreign language.
2. \*See the **Academic Services** section of the catalog for course options that satisfy literature components.

Freshman Year - 1st Semester		Freshman Year - 2nd Semester		Sophomore Year - 1st Semester		Sophomore Year - 2nd Semester	
Course	Hr	Course	Hr	Course	Hr	Course	Hr
US 1100	1	BIO 2430	4	HIST 1320	3	POSI 2320	3
ENG 1310	3	ENG 1320	3	BIO 2440 or 2400	4	PHIL 1305 or 1320	3
POSI 2310	3	COMM 1310	3	ENG Literature*	3	ART, DAN, MU or TH 2313	3
PSY 1300 or SOCI 1310	3	HIST 1310	3	PFW	1	Statistics - HP 3302, SOCI 3307, PSY 3301 or MATH 2328	3
HIM 2360	3	MATH 1315	3	PHYS 1310/1110	4	CHEM 1341/1141	4
PFW	1						
BIO 1330	3						
<b>Total</b>	<b>17</b>	<b>Total</b>	<b>16</b>	<b>Total</b>	<b>15</b>	<b>Total</b>	<b>16</b>

Junior Year - 1st Semester		Junior Year - 2nd Semester		Junior Year - Summer		Senior Year - 1st Semester	
Course	Hr	Course	Hr	Course	Hr	Course	Hr
RC 3313	3	RC 3321	3	RC 3333	3	RC 4211	2
RC 3315	3	RC 3323	3	RC 3232	2	RC 4212	2
RC 3212	2	RC 3322	3	RC 3334	3	RC 4314	3
RC 3314	3	RC 3324	3			RC 4316	3
RC 3316	3	RC 3125	1			RC 4317	3
<b>Total</b>	<b>14</b>	<b>Total</b>	<b>13</b>	<b>Total</b>	<b>8</b>	<b>Total</b>	<b>13</b>

Senior Year - 2nd Semester	
Course	Hr
RC 4223	2
RC 4321	3
RC 4322	3
RC 4225	2
RC 4224	2
<b>Total</b>	<b>12</b>

## Courses in Respiratory Care (RC)

- 2213 Introduction to Respiratory Care. (2-0) This course offers an in-depth overview of the respiratory care profession to acquaint the student with the responsibilities of the respiratory therapist as part of healthcare team. Progression of the profession, career opportunities, past and future impact of profession on patient recovery and health maintenance, and medical gas therapy will be covered.
- 2352 Cardiopulmonary-Renal Anatomy and Physiology. (3-0) Detailed study of the structure and function of the respiratory, cardiovascular, and renal systems. Prerequisite: BIO 2430 or instructor approval.
- 2375 Respiratory Care Practice III. (0-16) A supervised clinical education experience in which the student organizes and administers advanced respiratory therapeutics on assigned patients in adult critical care. Diagnostic procedures, including arterial blood gas procurement and measurement, bedside physiologic monitoring, airway care, basic pulmonary function testing, as well as monitoring and maintenance of ventilator parameters are performed.
- 3125 Pulmonary Function Testing. (0-4) This course examines the most common pulmonary function tests, their techniques, and the pathophysiology that may be evaluated by each test. Pulmonary function equipment, calibration, and the American Thoracic Society guidelines will be discussed. Laboratory practice of performing the tests will be provided to develop skills for testing patients.
- 3212 Pharmacology. (2-0) A comprehensive study of pharmacology principles. Receptor theory, clinical applications of medications, and historical analysis of first-generation medications will be covered. Current medication trends and recommendations are also examined.
- 3232 Hemodynamic Diagnostics. (2-0) An advanced study of cardiovascular hemodynamic measurements. Normal cardiovascular physiology and measures are examined, as well as variations caused by disease. Current clinical trends and practices in hemodynamic procedures are also explored.
- 3310 Cardiopulmonary/Renal Gross Anatomy. (2-3) Designed to acquaint the student with the anatomy and physiology of the cardiovascular, pulmonary, and renal systems. Students will participate in the cadaver dissection and radiographic anatomy by matching cadaver cardiopulmonary structures with radiographic findings. Prerequisites: BIO 2430 and RC 2352.
- 3311 Applied Pathology. (3-0) Lecture series and case presentation related to pathophysiology, etiology, symptoms, diagnosis and treatment of selected pulmonary disease entities, cardiac diseases, neurologic disease processes and occupationally acquired disease entities as they relate to respiratory function. Clinical Simulation software utilized for clinical patient assessment, diagnostic data gathering and treatment. (WI)
- 3313 RC Clinical Practice I. (0-16) This course provides an introduction to respiratory care clinical skills, including vital signs, chest assessment, infection control, aerosolized medication delivery, oxygen therapy, hyperinflation therapy, and airway clearance. This course prepares the student for direct patient care to be performed in more advanced courses. Direct patient care is performed under close supervision.
- 3314 Respiratory Care Instrumentation. (2-3) Through lectures and lab exercises, students are acquainted with concepts of design, function, and operation of basic respiratory care equipment. Oxygen cylinders, regulators, flowmeters, oxygen analyzers, oximeters, oxygen adjuncts, humidifiers, nebulizers, airways, and pressure cycled ventilators will be covered. The course also covers respiratory pharmacology, decontamination of equipment, and arrhythmia recognition.
- 3315 Cardiopulmonary - Renal Anatomy and Physiology. (2-3) This course provides an in-depth human gross anatomy study of the cardiac, respiratory, and renal systems. Clinical application of pulmonary anatomy and physiology will also be explored.
- 3316 Fundamentals of Respiratory Care. (3-0) This course provides a study of theories and modalities utilized in delivering, monitoring, and evaluating basic respiratory therapeutics to patients with compromised respiratory function in various healthcare settings. Aspects of artificial ventilation, arterial blood gas analysis, lung volume diagnostics, and hyperinflation intervention will be covered in patient scenarios.
- 3321 Cardiopulmonary Pathology. (3-0) As an introduction to the assessment, treatment, and pathophysiology of respiratory diseases, this course focuses on the signs, symptoms, etiology, pathophysiology, diagnosis and treatment of selected diseases. Utilizing clinical simulation software to develop critical thinking regarding assessment, diagnostic data gathering. (WI)
- 3322 Critical Care Concepts. (3-0) This course provides students with an in-depth study of selected respiratory care techniques with an emphasis on the care of critically ill patients. Critical skills and knowledge of mechanical ventilation, bedside diagnostic techniques, patient monitoring, and rehabilitation are explored in the critical care setting.
- 3323 RC Clinical Practice II. (0-16) Students perform clinical procedures and interact with patients and professional personnel in a healthcare institution under the supervision of a respiratory therapist. Students gain direct patient care experience as presented in medical/surgical and pediatric clinical situations. Preparatory instruction is provided for mechanical ventilation and other critical care procedures.
- 3324 Critical Care Instrumentation. (2-3) A comprehensive study of advanced equipment and technology utilized in the critical care, homecare, pulmonary rehabilitation and blood gas lab settings. Lectures and class activities will detail hardware for hemodynamic monitoring, supplemental oxygen administration, noninvasive monitoring, blood gas measurement, quality control and assurance and mechanical ventilator concepts.
- 3330 Advanced Respiratory Care Technology. (3-0) In-depth study of respiratory physiology comparing the cardiopulmonary system of the adult, infant, and fetus. Emphasis is placed on how to evaluate, treat and monitor patients with respiratory insufficiency or failure.
- 3333 RC Clinical Practice III. (0-16) A supervised clinical education experience in which the student administers advanced respiratory therapeutics to patients in the adult critical care setting. Diagnostic and monitoring procedures, including arterial blood gases, bedside physiologic monitoring, airway care, advanced pulmonary function testing, ventilator management will be performed according to physician orders.
- 3334 Neonatal Respiratory Care. (2-3) An in-depth study of neonatal utero development, fetal lung development, fetal circulation, and cardiovascular changes at birth. Neonatal

- respiratory emergencies, neonatal respiratory diseases and management, congenital defects, and respiratory care procedures specific to the neonate will be discussed. A specific emphasis on neonatal mechanical ventilation will be included.
- 3335 RC Clinical Practice IV. (0-16) This course provides an advanced clinical education experience in respiratory therapeutics on patients in the adult critical care setting. Appropriate clinical expectations include experience in arterial blood gas procurement and measurement, bedside physiologic monitoring, airway care, and monitoring of mechanical ventilation in the intensive care unit.
- 3352 Advanced Ventilator Concepts. (3-0) In-depth study of specific ventilators used in adult, pediatric and neonatal ventilation to include ventilator classification, method of operation, parameter interrelationships and ventilator patient monitoring. Lectures and class activities will focus on ventilator analysis of several contemporary volume, time, pressure, and flow-cycled ventilators.
- 3365 Respiratory Care Practice IV. (0-16) Advanced clinical education in the intensive care setting in which the student monitors and administers critical care therapeutics on assigned patients in the adult and neonatal intensive care setting. Physician input and pulmonary rounds assist students in theory and application of care for the critically ill patient.
- 3375 ICU Internship. (0-16) Through affiliations with agencies, hospitals and selected treatment centers the student interns in the intensive care setting by monitoring and administering critical care therapeutics. Analysis and clinical application of advanced ventilator care of patients is emphasized along with patient care diagnostics and management in the ICU.
- 4211 Respiratory Care Research (2-0) This course provides an introduction to applied experimental design, research ethics, and data analysis focusing on the respiratory care profession. Students will participate in each step the research process from developing a personal research hypothesis and research design through IRB submission. Prerequisite: HP 3302 or equivalent.
- 4212 Critical Care Clinical Simulation. (1-3) This course will prepare respiratory care students to successfully navigate multiple clinical simulation patient cases. Clinical simulations covered reflect real-life patient scenarios and mirror the content found on national board exams. Students will receive focused attention on board exam review and evidence-based care.
- 4214 Polysomnography Instrumentation II. (0-2) Advanced study of waveform characteristics and montage development, filters, and PSG electronics. Signal pathways, reference electrodes, impedance checking, and filter settings in calibration waves will be covered. Prerequisite: Departmental approval.
- 4220 Cardiovascular and Pulmonary Diagnostics. (2-0) Examination of non-invasive monitoring technology in respiratory care, hemodynamic monitoring, acid-base interpretation of blood gas and application, and pulmonary function test interpretation.
- 4223 ICU Internship. (0-8) Through affiliations with agencies, hospitals and selected treatment centers, the student interns in the intensive care setting by providing patient care and administering critical care therapeutics. Analysis and clinical application of advanced ventilator care of patients is emphasized along with patient care diagnostics and management in the ICU.
- 4224 Research Seminar. (2-0) A study of the research process from a review of research design to methodology implementation including data collection, statistical analysis, and presentation of a research proposal on a topic in the respiratory care discipline. The course provides direct research experience culminating in a research paper and presentation. Prerequisite: RC 4211.
- 4225 Specialization Internship. (0-8) This course provides the student with an internship opportunity to gain clinical experience in sub-specialty areas including pediatrics, adult intensive care, neonatal intensive care, pulmonary function testing, home care/durable medical equipment, subacute care, pulmonary rehabilitation, polysomnography, education, and research. Specific specialty offerings will be based on clinical availability.
- 4246 Respiratory Care Internship. (0-16) Provides the student with opportunities to gain clinical experience in specialty areas to include pediatrics, adult critical care, neonatal intensive care, pulmonary function diagnostics, home care, subacute care, pulmonary rehabilitation or polysomnography. Specific specialty offerings will be based on clinical availability. Repeatable for credit with different emphasis.
- 4310 Fundamentals of Polysomnography. (3-0) Introduction to the physiology of sleep, including sleep neurology, sleep architecture, and the classification of sleep disorders. Review of basic cardiac physiology and ECG arrhythmia recognition. Sleep pathologies will be discussed according to etiology, pathophysiology, symptoms, diagnosis, treatment, and prognosis. Prerequisite: Departmental approval.
- 4313 Polysomnographic Therapeutic Intervention. (3-0) In-depth study of the treatments available for sleep apnea, including CPAP, BiPAP, oxygen therapy, patient adjunctive fitting, surgical intervention, and the role of the sleep tech in titration. Special attention will be given to titration algorithms, nocturnal seizure disorder studies, REM behavior disorder studies, MSLT's and MWT's. Prerequisite: Departmental approval.
- 4314 Advanced Ventilator Concepts. (2-3) This course provides an in-depth study of specific adult mechanical ventilators addressing traditional and proposed ventilator classification, various methods of operation, parameter interrelationships and ventilator patient monitoring. Lectures and class activities will focus on ventilator analysis of several contemporary volume-, time-, pressure- and flow-cycled ventilators with advanced graphics interpretation required.
- 4315 Neonatal Respiratory Care. (3-0) In-depth study of neonatal intensive care, pediatric/neonatal respiratory emergencies, chronic pediatric respiratory diseases, fetal lung development, fetal circulation, changes at birth, neonatal respiratory disease and its management, congenital defects and other related aspects.
- 4316 RC Clinical Practice V. (0-16) This course provides an advanced intensive care clinical education requiring students to monitor and administer critical care therapeutics on assigned patients in the adult and neonatal critical care setting. Cardiopulmonary diagnostic experience will be gained through arterial blood gas and co-oximetry assessment with

- ventilator graphic analysis.
- 4317 Pulmonary Rehabilitation. (3-0) This course is designed to introduce students to the medical, ethical, and insurance reimbursement issues of pulmonary rehabilitation, homecare, and sleep diagnostic facilities. The role of therapists in case management, treatment requirements, and discharge planning along with the impact of legislation, regulations, and politics will be explored.
- 4318 Independent Study in Respiratory Care. (3-0) This course provides the student an in-depth study on a topic or health-care problem impacting respiratory care. The course may be repeated for credit with a different emphasis.
- 4320 Contemporary Issues in Cardiopulmonary Care. (3-0) This course is designed to prepare senior-level students for the dynamic evolution of respiratory care as a profession. It will build on previous didactic courses and clinical experiences. It will examine opportunities for respiratory therapists in continuing care and home care and also cover the impact and role of legislation, regulations, professional organizations and politics in respiratory care. Ethics of patient care and professional behavior will be explored. Repeatable for credit with different emphasis. (WI)
- 4321 Leadership and Management for Respiratory Care Professionals. (3-0) This course is designed to comprehensively examine the dynamic evolution of respiratory care as a profession. The role of the respiratory care professional in the areas of leadership, management, and professional ethics will be explored with regards to the profession's impact on legislation, regulation, and politics. (WI)
- 4322 RC Practitioner Seminar. (3-0) Students will research and present selected case studies by students to physicians, therapists, and colleagues. Presentations will emphasize total patient management with etiology, symptoms, pathophysiology, diagnosis, and treatment of specific diseases including asthma, pulmonary embolism, CHF, COPD, ARDS, neurologic diseases, inhalational injury, pneumonia, sleep disordered breathing, AIDS, and drug overdose. (WI)
- 4330 Pulmonary Rehabilitation. (3-0) An introduction to medical, ethical, and reimbursement issues of respiratory care pulmonary rehab and home care. The role of the therapist in cost containment, treatment requirements, and discharge planning will be addressed. Frequently applied respiratory and durable medical equipment will be discussed in detail.
- 4341 Respiratory Care Seminar. (3-0) Individual and group presentation of selected case studies by the student to physicians, therapists and other students. Emphasis placed on total patient management with etiology, symptoms, pathophysiology, diagnosis, and treatment of specific diseases such as asthma, pulmonary edema, CHF, CF, COPD, ARDS, neurologic diseases, pulmonary fibrosis, pneumonia, bronchiectasis, AIDS and drug overdose. (WI)
- 4350 Respiratory Care Research. (3-0) An introduction to research methods, experimental inquiry, and naturalistic observations. This course is designed to acquaint the student with the necessary skills to conduct research in respiratory care. The primary purpose is to provide a foundation from which the student will critique, develop, and apply multiple research strategies. Repeatable with different emphasis. Prerequisite: HP 3302 or equivalent.
- 4412 Clinical Polysomnography-Sleep Staging I. (0-10) Direct patient diagnostic monitoring is performed under close supervision in a sleep lab. Differential amplifiers, amplifier calibration, artifact correction, and the professional role of the sleep tech will be demonstrated. Prerequisite: Departmental approval.
- 4415 Clinical Polysomnography-Sleep Staging II. (0-10) Advanced clinical education in sleep staging rules, light, delta, and REM sleep scoring and analysis. EEG, EMG, ECG, and respiratory events will be discussed in-depth and are components of the polysomnogram report. Prerequisite: Departmental approval.