

Acute and Critical Care RC 212

Location: Simi Institute for Careers and Education Main Campus, Simi Valley, California

Length: 100 hours (10 weeks).

Course Dates: Spring

Prerequisites: Successful completion of required prior Respiratory Therapy program courses below:

- Medical Terminology RC 100 / ST 100
- Microbiology and Infection Control RC 101 / ST 101
- Anatomy and Physiology for Healthcare Professionals RC 102 / ST 102
- Math and Science for Respiratory Care RC 103
- Foundations of Respiratory Care RC 200
- Applied Anatomy and Physiology RC 202
- Assessment of Respiratory Disorders RC 204
- Cardiopulmonary Disease and Pharmacology RC 206

Instructional delivery format: Traditional classroom model

Course Description: The course provides students with knowledge of acute and critical care respiratory care principles. Major topics include: respiratory failure and the need for ventilatory support; ventilatory modes and functions; physics and physiology of ventilatory support; initiating and adjusting ventilatory support; monitoring, managing, and discontinuing ventilatory support; and principles of neonatal and pediatric respiratory care.

Learner Outcomes: Upon successful completion of the course, students will be able to: identify the types of ventilator failure; list the indications for ventilator support; discuss the mechanisms of hypercapnic respiratory failure; demonstrate how to classify a ventilator; discuss clinical applications of ventilator modes; explain and diagram the physiological effects of modes of ventilation, flow pattern, flow rate, inspiratory hold, and positive end-expiratory pressure; give examples of the detrimental pulmonary effects of PPV and cardiovascular effects of PPV; propose initial ventilator support settings and rationalize the proper adjustment of settings; perform general patient assessment; synthesize physiological monitoring principles; interpret assessments of hemodynamics; assess the management of the patient-ventilator system; examine patient evaluation criteria and methods of discontinuing ventilator support; summarize the development and transition of the respiratory system and assessment of the newborn and pediatric care patient.

Airway Management and Therapy RC 208

Location: Simi Institute for Careers and Education Main Campus, Simi Valley, California

Length: 100 hours (10 weeks).

Course Dates: Spring

Prerequisites: Successful completion of required prior Respiratory Therapy program courses below:

- Medical Terminology RC 100 / ST 100
- Microbiology and Infection Control RC 101 / ST 101
- Anatomy and Physiology for Healthcare Professionals RC 102 / ST 102

- Math and Science for Respiratory Care RC 103
- Foundations of Respiratory Care RC 200
- Applied Anatomy and Physiology RC 202
- Assessment of Respiratory Disorders RC 204
- Cardiopulmonary Disease and Pharmacology RC 206

Instructional delivery format: Traditional classroom model

Course Description: The course provides students with knowledge of medical gas delivery to respiratory patients and provides discussion of physiology of the airways from the nares to the terminal bronchi. The course gives respiratory students information regarding methods to bypass the natural airways and supply oxygen to patients' bodies and remove carbon dioxide. The course also covers ways to deliver medication to patients through direct interaction with the lungs. Major topics include: physiology of the natural airway, detailed description of artificial airways and their placement in the patient's body, regulation of humidity in natural and artificial airways, delivery of medication to the patient using the airways, medical gases and their safe handling, techniques to provide lung expansion and airway clearance to patients, and advanced cardiac life support certification.

Learner Outcomes: Upon successful completion of the course, students will be able to: explain how to assess the need for oxygen therapy; identify and examine precautions and complications associated with oxygen therapy; describe the characteristics, storage, distribution, and regulation of medical gases; calculate when to humidify and warm inspired gas; compare how various types of humidifiers and large volume aerosol generators work; argue the need for lung expansion therapy; outline how lung expansion therapy works; list the indications, hazards, and complications that are associated with the various modes of lung expansion therapy; summarize the need for and the selection of an artificial airway; discuss the complications and hazards that are associated with artificial airways; safely perform endotracheal and nasotracheal suctioning; summarize the goals, indications, and methods of needs assessment for bronchial hygiene therapy; and successfully demonstrate the skills required to earn an Advanced Life Support Certification.

Anatomy and Physiology for Healthcare Professionals RC 102

Location: Simi Institute for Careers and Education Main Campus, Simi Valley, California

Length: 100 hours (10 weeks).

Course Dates: Fall

Prerequisites: Successful completion of required prior Surgical Technology program courses below:

Math and Chemistry for Healthcare Professionals RC 103 / ST 103

or;

Successful completion of required prior Respiratory Therapy program courses below:

Math and Chemistry for Healthcare Professionals RC 103 / ST 103

Instructional delivery format: Traditional classroom model

Course Description: The course provides students with knowledge of the structure and function of the human body. Major topics include: organization and general plan of the body; basic

chemistry; cells; tissues and membranes; the integumentary, skeletal, muscular, nervous, endocrine, circulatory, cardiovascular, lymphatic, immunologic, respiratory, digestive, reproductive, and renal systems; special senses; fluid electrolytes and acid-base; human development and genetics; and an overview of microbiology and human disease.

Learner Outcomes: Upon successful completion of the course, students will be able to: identify gross and microscopic components of the integumentary, skeletal, muscular, and nervous systems; anatomical and physiological terminology; explain the how structures (anatomy) of these components support their functions (physiology) at the molecular, cellular, tissue, and organ/organ system levels; apply the concept of homeostasis to human physiological activity; identify major organic and inorganic chemicals as they relate to the human body; describe cellular structure and cellular activity; discuss anatomical and physiological features of the integumentary, skeletal, muscular, nervous and sensory systems; evaluate select pathological conditions as they relate to normal functioning of the above-named systems; and assess for features of biochemical and cellular physiology, as well as neuronal integration of various body processes.

Applied Anatomy and Physiology RC 202

Location: Simi Institute for Careers and Education Main Campus, Simi Valley, California

Length: 100 hours (10 weeks).

Course Dates: Fall

Prerequisites: Successful completion of Foundations of Respiratory Care RC 200

Instructional delivery format: Traditional classroom model

Course Description: The course provides students with knowledge of cardiovascular system anatomy and physiology, respiratory anatomy, and detailed respiratory physiology, including acid-base balance. Major topics include: anatomy and physiology of the respiratory and cardiovascular system, mechanics of ventilation, gas exchange and transport, solutions, body fluids and electrolytes, acid-base balance, and regulation of breathing.

Learner Outcomes: Upon successful completion of the course, students will be able to: describe the gross structure and function of the thorax, innervation of the lung and thoracic musculature, the vascular supply, anatomy of the respiratory tract, the functional anatomy of the heart and vascular system, control of the cardiovascular system, and events of the cardiac cycle; explain the principles relating to mechanics, distribution, efficiency, and effectiveness of ventilation; compare and contrast principles relating to normal and abnormal gas exchange, oxygen and carbon dioxide transport, principles of solutions, and body fluids and electrolytes as they relate to respiratory care; and discuss principles of acid-base balance, acid excretion, acid-base disturbances and clinical acid-base states as they relate to respiratory care, and the regulation of breathing and the various reflexes' effect on breathing.

Assessment of Respiratory Disorders RC 204

Location: Simi Institute for Careers and Education Main Campus, Simi Valley, California

Length: 100 hours (10 weeks).

Course Dates: Spring

Prerequisites: Successful completion of Applied Anatomy and Physiology RC 202

Instructional delivery format: Traditional classroom model

Course Description: The course provides students with knowledge of assessment of respiratory patients. Proper assessment allows students to correctly interpret patients' condition and recommend appropriate treatment methods. Major topics include: basic physiologic mechanisms that regulate breathing, the basic components of taking medical histories and completing physical examinations, the common blood tests conducted on patients in the hospital, why and how ECGs are done and interpreted, analyzing and monitoring gas exchange – between the lungs and blood and between blood and tissues, the basics of capacities, and the ability of the lungs to diffuse gases, the basic elements of a chest x-ray (chest radiograph), advanced imaging, CT, magnetic resonance imaging (MRI), and ultrasound, nutritional assessment and how to estimate and meet overall energy needs.

Learner Outcomes: Upon successful completion of the course, students will be able to: perform patient interviews; explain the principles of and purpose of patient interviewing, history taking, and physical examinations; summarize the mechanics responsible for normal and abnormal lung sounds; interpret normal and abnormal ECG recordings; interpret blood count, blood chemistry, and electrolyte readings; detail the gram stain and culture process; describe sampling, analyzing, and monitoring of blood gases; explain oximetry, capnometry, and capnography; outline how to perform spirometry; defend how to use pulmonary function data to evaluate respiratory care; demonstrate how to review a pulmonary function report to identify patterns of pulmonary disease; and give examples of how chest imaging is used in the diagnosis of lung disease; interpret chest imaging studies.

Cardiopulmonary Disease and Pharmacology RC 206

Location: Simi Institute for Careers and Education Main Campus, Simi Valley, California

Length: 100 hours (10 weeks).

Course Dates: Spring

Prerequisites: Successful completion of Assessment of Respiratory Disorders RC 204

Instructional delivery format: Traditional classroom model

Course Description: The course provides the study of the etiology, pathology, clinical features, treatment of the more common cardiopulmonary diseases, and respiratory pharmacology. Major topics include: pulmonary infections, obstructive lung disease, interstitial lung disease, pleural diseases, pulmonary vascular disease, acute lung injury, pulmonary edema, multiple system organ failure, lung neoplasm, disorders of sleep, neuromuscular and other diseases of the chest wall, neonatal and pediatric respiratory disorders, and respiratory care pharmacology.

Learner Outcomes: Upon successful completion of the course, students will be able to: list the elements of an epidemiological outline; given a disease topic, state the etiology; summarize the diagnostic criteria; list the clinical manifestations; outline the treatment, prognosis, and preventive measures for each disease; diagram and explain basic principles of pharmacology, airway receptors, and neural control of the lung; define mode of action, indications, and adverse effects for each major class of aerosolized drug; recall the brand names and dosages for specific drugs in each class; and explain how to assess the outcomes of aerosol drug therapy.

Clinical Practice in Respiratory Care RC 230A OR Clinical Practice in Respiratory Care RC 230B OR Clinical Practice in Respiratory Care RC 230C

Location: Various Hospitals in the Ventura, Santa Barbara, and Los Angeles Counties

Length: 250 hours (10 weeks).

Course Dates: Fall, Spring

Prerequisites: Successful completion of Airway Management and Therapy RC 208

Instructional delivery format: Hands-on patient care, laboratory, and classroom model

Course Description: The goal of the course is to provide students with experiences and opportunities to practice respiratory care working with patients in clinical care settings including; general medical/surgical units, intensive care units, emergency departments, post-surgical units, hyperbaric oxygen chamber units, labor and delivery, neonatal intensive care, pediatric units, and inpatient and outpatient rehabilitation units. The major topics discussed or observed include: all skills, terminology, assessment procedures learned throughout the program.

Learner Outcomes: Upon successful completion of the course, students will be able to: collect and evaluate clinical information; formulate patients' therapeutic plans; select, assemble, check, and correct malfunction of equipment; maintain airways; mobilize and remove secretions; assure ventilation and oxygenation; assess patient response and modify therapy based on patient response; initiate emergency resuscitation; maintain records; and conduct patient education.

Foundations of Respiratory Care RC 200

Location: Simi Institute for Careers and Education Main Campus, Simi Valley, California

Length: 100 hours (10 weeks).

Course Dates: Fall

Prerequisites: Successful completion of Anatomy and Physiology for Healthcare Professionals RC 102

Instructional delivery format: Traditional classroom model

Course Description: The course provides students with knowledge of introductory principles in the delivery of quality respiratory care, including ethics and legal implications of practice, recordkeeping, and emergency life support. Major topics include: elements that constitute quality respiratory care, the effect of respiratory care protocols on the quality of respiratory care services delivered, ethical and legal implications of practice, patient safety, communication and recordkeeping, and emergency and basic life support certification.

Learner Outcomes: Upon successful completion of the course, students will be able to: state the elements that constitute quality respiratory care; explain how the efficacy of respiratory care protocol enhances the quality of respiratory care services; outline elements of ethical dilemmas; list and discuss information that should be gathered before making an ethical decision; categorize elements of professional malpractice and negligence; reconstruct how a Respiratory Care Practitioner (RCP) can become liable for wrongful acts; give examples of what safety hazards and risks are common among patients receiving respiratory care; describe and demonstrate safe patient movement and ambulation; examine and evaluate elements of effective health communication and conflict resolution; compare and contrast the components of a traditional medical record and the legal and practical elements of recordkeeping; identify the causes and prevention of sudden death; and obtain basic life support certification.

Math and Chemistry for Healthcare Professionals RC 103

Location: Simi Institute for Careers and Education Main Campus, Simi Valley, California

Length: 200 hours (20 weeks).

Course Dates: Summer

Prerequisites: High school diploma or equivalent and acceptance into the Respiratory Therapy program.

Instructional delivery format:

Traditional classroom model

Course Description: The course provides the basis for and the application of mathematics and chemistry in healthcare settings. Major topics include: math, exponents, significant digits, ratios, proportions, percentages, units of measurement, logarithms, graphs, algebraic expression, real numbers/comparisons, order of operations, combining like terms, evaluating formulae, and reciprocal relationships; and, chemistry, characteristics of solutes and solutions, osmotic pressure, solute/solution measures by ratio, weight/volume, and percent, ionic makeup of acids, bases, and salts, and blood pH values.

Learner Outcomes: Upon successful completion of the course, students will be able to: express in proper scientific notation answers obtained from mathematical calculations; differentiate between the precision and accuracy of measurement; discuss how to solve mathematical problems using ratios; apply proportions to mathematical problems; compare and contrast the term volumes percent from an expression that relates to an actual percentage; apply dimensional analysis to solving mathematical problems; describe International System of Units; determine the logarithm of a number and obtain antilogarithms; interpret graphic representation of data; define independent variable and dependent variable; understand the differences among hyperbolic, parabolic, and straight line curves; recognize different forms of algebraic expressions; locate positive and negative numbers located on a number line; state the rules for order of operations; identify terms in an algebraic expression; describe a formula; define a reciprocal relationship; name the three fundamental subatomic particles comprising an element; distinguish atomic weight from atomic mass; discuss electron configuration; explain the three types of chemical bonding; state Henry's law of solubility; the two forms of Graham's law of diffusion; articulate the following terms: Solution, Solute, Solvent, Mole, or gram molecular weight; relate the law of mass action to the Henderson-Hasselbalch equation; compute the density and specific gravity for gases and liquids; define thermal energy, temperature and the components of an electrochemical cell; distinguish between oxidation and reduction; describe the flow of current through an electrochemical cell; detail the structural similarities of a typical living cell; discuss the chemistry associated with a typical living cell; explain basic principles of organic chemistry; relate biochemical roles of carbohydrates; describe biochemical roles of proteins; explain biochemical roles of lipids; relate biochemical roles of nucleic acids; and discuss the biochemistry of the hemoglobin molecule.

Medical Terminology RC 100

Location: Simi Institute for Careers and Education Main Campus, Simi Valley, California

Length: 100 hours (10 weeks).

Course Dates: Fall

Prerequisites: Admission to the program

Instructional delivery format: Traditional classroom model

Course Description: The course provides students with a fundamental knowledge of medical terminology and abbreviations. Emphasis is placed on spelling, definition, usage, and pronunciation. Major topics include: medical terms, prefixes, suffixes, word roots, and combining forms for the skeletal, muscular, integumentary, nervous, cardiovascular, endocrine,

digestive, renal, lymphatic, respiratory, reproductive systems, and medical and charting abbreviations.

Learner Outcomes: Given a medical term, definition, or list of phrases, students will be able to: describe the component parts of medical terms; analyze the component parts of medical terms; use basic prefixes, suffixes, and combining forms to build medical terms; explain common rules for proper medical term formation, pronunciation, and spelling; relate the terminology to the names, locations, and functions of the major organs of the body systems; discuss the terms utilized for the major disease processes including symptoms, diagnosis, diagnostic testing, surgeries, and therapies; define basic terms and abbreviations used in documenting health records; use common terms and abbreviations in documenting medical records related to the major systems of the body; and identify medical terminology and health issues as they apply to a culturally diverse populations.

Microbiology and Infection Control RC 101/ST 101

Location:

Simi Institute for Careers and Education Main Campus, Simi Valley, California

Length: 100 hours (10 weeks).

Course Dates: Fall

Prerequisites: Successful completion of RT Math and Chemistry RC 103

Instructional delivery format: Traditional classroom model

Course Description: The course provides students with fundamental knowledge of microbiology, its role in the human disease process, principles of infection control and the prevention of nosocomial infections. Major topics include: fundamentals of microbiology; the diagnosis and treatment of patients having bacterial, viral, or fungal diseases; the disinfection and sterilization of respiratory therapy equipment; the adherence to and the utilization of appropriate isolation procedures; and the prevention of nosocomial infections.

Learner Outcomes: Upon successful completion of the course, students will be able to: classify microbes, bacterial morphology, straining characteristics, growth requirements, and growth control; compare and contrast the roles of normal flora, fungi, and viruses in health and disease; demonstrate and summarize the importance of infection control in health care; outline methods of sterilization and decontamination; describe methods to monitor the effectiveness of the sterilization process; and define the role of the Respiratory Care Practitioner (RCP) in bacteriologic surveillance and hospital epidemiology.

Preventative and Long-Term Care RC 214

Location: Simi Institute for Careers and Education Main Campus, Simi Valley, California

Length: 50 hours (5 weeks).

Course Dates: Summer

Prerequisites: Successful completion of Acute and Critical Care RC 212

Instructional delivery format:

Traditional classroom model

Course Description: The course provides students with knowledge of health promotion, disease prevention, and long-term care of respiratory patients with emphasis on the care and psychological aspects of gerontology patients. Major topics include: patient education and health promotion, nutritional aspects of health and disease, cardiopulmonary rehabilitation, respiratory care in alternative settings, and care of gerontology patients.

Learner Outcomes: Upon successful completion of the course, students will be able to: outline patient education, principles and strategies, health promotion, and disease prevention; describe how comprehensive nutritional assessments are conducted; interpret and give examples of the principles of maintaining health through good nutrition; list and explain the elements of nutritional assessment; categorize the goals and objectives of a pulmonary rehabilitation program; justify outcome measures that can be used to evaluate pulmonary rehabilitation programs; define and explain what equipment and facilities are needed to run a pulmonary rehabilitation program; discuss alternative or post-acute care settings; formulate an effective discharge plan; give examples that illustrate how to select, assemble, monitor, and maintain oxygen therapy equipment in alternative settings; summarize the special needs of the gerontology patient; and successfully demonstrate all skills necessary to obtain Neonatal Resuscitation Program certification.

Respiratory Care Certification and Exam Preparation RC 216

Location: Simi Institute for Careers and Education Main Campus, Simi Valley, California

Length: 100 hours (10 weeks).

Course Dates: Spring

Prerequisites:

Instructional delivery format: Traditional classroom model

Course Description: The course provides students with the information and computer test taking skills to successfully pass the National Board for Respiratory Care (NBRC) Certification Exam (CRT) for respiratory care. Major topics include: respiratory care clinical data, equipment and therapeutic procedures and practice in computer-based examination test-taking skills.

Learner Outcomes: Upon successful completion of the course, students will be prepared to sit for board exams with the National Board of Respiratory Care to become Registered Respiratory Therapists; understand format of questions; gauge progression of exam in relation to time allotted; understand physical demands with multiple hour examinations; recall information needed to pass required number of questions; assess available data to order diagnostic data in the simulation setting; interpret data gathered to make a recommendation of action in the simulation setting; and recover from mistakes to complete the required number of simulations to pass the simulation exam.