REQUIRED RESPIRATORY THERAPY COURSEWORK:
This is evaluated on a course by course basis, depending upon
the students previous documented Respiratory Therapy courses.
Described below is the typical course work required for this spe-
cial program:

<table>
<thead>
<tr>
<th>SUBJECT &amp; NO.</th>
<th>COURSE DESCRIPTION</th>
<th>UNITS</th>
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<tr>
<td>MATH 125*</td>
<td>Intermediate Algebra or higher-level course</td>
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<tr>
<td>RESP TH 6*</td>
<td>Respiratory Physiology</td>
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<td>RESP TH 7*</td>
<td>Applied Medicine and Pathology</td>
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<td>RESP TH 21</td>
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<td>RESP TH 28*</td>
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<td>RESP TH 29</td>
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<td>RESP TH 30</td>
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GENERAL EDUCATION REQUIREMENTS

|プラン B | 13 |

| PREVIOUSLY EARNED COLLEGE UNITS** | 22-24 |

Total | 60 |

*This course has a prerequisite.
**Coursework must have been completed at a United States regionally accredited institution.

**Coursework must have been completed at a United States regionally accredited institution in the United States. In addition to above classroom work, the advanced standing student is required to enroll in "Independent Study" courses to permit the assignment of clinical practice. The clinical practice requirement will vary, according to the student's documented past clinical experience. The minimum requirements will be for the student to perform critical care practice at one of our clinical affiliates and then pass the same "clinical evaluation" process in critical care required of the students pursuing the regular program track. The advanced standing student will also be required to do a "Neonatal ICU" clinical rotation. Additionally, students must supply written proof from the Medical Director of their current employer that they are safe for clinical practice. Program admission is subject to space availability in the program's clinical affiliates.

TRANSFER STUDENTS: If any or all of the prerequisite courses or their equivalents have been taken elsewhere, transcripts should be sent to both the ELAC Admissions Office and the Respiratory Therapy Program office located within the Life Sciences Department. Students should initiate a "General Petition" in the Admissions Office requesting that credit be granted for those courses. Supporting documentation should be attached to the General Petition to support the student's request.

Course Recency Requirement. Students must have received a grade of “C” or better in Microbiology 20 and Physiology 1 (or their equivalents) within seven (7) years prior to admission to the Non-Traditional Respiratory Therapy program.

SUBJECTS & COURSE DESCRIPTIONS

Anatomy (ANATOMY)

1 Introduction to Human Anatomy (4) UC:CSU IGETC Area 5B
   (UC Credit Limit: Anatomy 1 + Physiology 1 combined is equivalent to Biology 20, maximum credit 8 units).
   Advisory: Health Information Technology 133 and Physiology 1.
   LECTURE, 3 HOURS; LABORATORY, 3 HOURS.
   This course examines cells, tissues, and organs of these human systems: Integumentary, skeletal, muscular, nervous, circulatory, respiratory, digestive, urinary, endocrine, lymphatic, and reproductive. Dissection of the cat and other mammalian organs are used in conjunction with human models in the study of human anatomy.

Biology (BIOLOGY)

3 Introduction to Biology (4) UC:CSU IGETC Area 5B, 5C
   (UC Credit Limit: No credit for Biology 3 or 25 if taken after Biology 6).
   LECTURE, 3 HOURS; LABORATORY, 3 HOURS.
   Introductory organismal plant and animal biology for non-majors with an emphasis on scientific methodology and basic biological principles. Topics include basic inorganic, organic and biochemical principles, structure and function of bacteria, plant and animal cells and tissues, energy systems of photosynthesis and respiration, cellular division, genetics and inheritance including Mendelian Punnett square problem solving, its application to normal and abnormal human genetic conditions, evolution and classification of bacteria, viruses, protist, fungi, plants and animals, diversity, behavior, and ecology of communities. The anatomy and physiology of plant and animal systems, development, growth and reproduction, transport systems, nutrition, and immunity are emphasized.
Advisory: A college life science course such as Biology 3 is recommended. This course provides a comprehensive introduction to the science of biotechnology by providing both theory and hands-on experience with laboratory protocols that include the isolation, purification, and cloning of a gene. Students analyze the principles of gene cloning and other applications of DNA technology, including the use of restriction enzymes, electrophoresis, blotting, hybridization, and sequencing. Polymerase chain reaction is explained in detail and how it has revolutionized research in molecular biology, medicine, forensics, and systematics.

46 Genetic Analysis (3) UC:CSU IGETC Area 5B
Prerequisite: Biology 6
Lecture, 3 hours.
This course is designed for Life Science majors as a continuation of their general biology studies. It provides a comprehensive introduction to genetic analysis examining topics such as chromosome analysis, population genetics, and genomics.

185 Directed Study - Biology (1) CSU
Prerequisite: Biology 3
Conference 1 hour per week per unit.
The above courses provide an opportunity for students to gain additional experience in laboratory skills and applications of biological science concepts and principles on a contract basis under the direction of a supervising instructor.

Electron Microscopy (ETN MCR)
101 Introduction to Light Microscopy (2) CSU
Prerequisite: Biology 3 or Biology 6.
Lecture, 1 hour; Laboratory, 3 hours.
This course provides students with the opportunity to learn light microscopy sample preparation, staining, and imaging using state-of-the-art instruments. The available instruments include an Aperio Scan Scope for survey imaging of tissue specimens, transmitted light microscopes, fluorescence microscopes, and scanning confocal laser microscopes. Students work with medically-relevant biological specimens and learn histochemical staining techniques. For fluorescence and confocal laser microscopy, students learn immunolabeling and cytotoxicity techniques and treatments.

102 Introduction to Electron Microscopy (4)
Prerequisite: Biology 3 or Biology 6.
Lecture, 2 hours; Laboratory, 6 hours.
This course provides students with the basic skills needed to prepare samples for and operate the scanning electron microscope (SEM) and the transmission electron microscope (TEM). Sample preparation techniques include sample collection, chemical processing and embedding, thin sectioning and preparation of glass knives. The lecture portion of the course covers the principles of electron microscopy and the chemical and biological concepts involved in sample preservation, staining, and imaging. Introductory level information on cellular ultrastructure, biochemistry and geochemistry is covered to allow students to interpret their data.
This course covers special techniques for scanning electron microscopy (SEM) and transmission electron microscopy (TEM), currently employed in medical and non-medical fields. Special staining techniques for TEM and analytical methods including backscattered electron imaging, selected area electron diffraction, and energy dispersive X-ray spectrometry are covered. Students also become familiar with fluorescent staining and imaging as well as immunolabelling of samples as they examine sample context in a variety of state-of-the-art light microscopes. In addition, routine service and maintenance of the scanning and transmission electron microscopes is covered.

201 Histological Microscopy (4)
Prerequisite: Electron Microscopy 103.
Lecture, 2 hours; Laboratory, 6 hours.
The primary objective of histochemistry is to microscopically study the structural relationships of tissues in animals to gain an insight into how these organisms function. The techniques that are taught include basic cell and tissue chemistry, selecting and obtaining tissue samples, chemical and physical fixation, dehydration, infiltration, embedding, sectioning or microtomy, and observation of prepared microscopic slides. This training involves manual and automated processing techniques. Differential staining of cellular components, such as the cell nucleus, cytoplasm, and cellular matrices are performed in order to demonstrate the chemical and structural principles involved.

202 Ultrastructure of Plants, Fungi, and Bacteria (3)
Prerequisite: Electron Microscopy 103.
Lecture, 1 hour; Laboratory, 6 hours.
This course emphasizes the use of light and electron microscopy to visualize a variety of organisms—plants, bacteria, and fungi in order to learn their ultrastructural characteristics. Differential staining techniques are incorporated and their principles discussed. Students collect their own sample material during field excursions to the Gold Creek Ecological Preserve. The field characteristics and ecology of the organisms are discussed during these outings and used to provide a context for the microscopy work.

203 Fluorescence Microscopy and Live cell Imaging (3)
Prerequisite: Electron Microscopy 103.
Lecture, 2 hours; Laboratory, 4 hours.
This course introduces students to imaging techniques used in research and biotechnology. The course is designed to train students in the theory and operation of the laser scanning confocal microscope, the spinning disk confocal microscope, the digital light and fluorescence microscope, and the semi-automated digital scan scope. The course emphasizes immunostaining techniques and sample preparation, microscope alignment, software operation and image acquisition, and image processing and analysis. The course also includes topics such as: Live cell imaging, cellular compartmental staining, 3-D image reconstruction, 4-D imaging and video production, Adobe Photoshop techniques for scientific image processing, and image analysis of both light and fluorescent images.

204 Ultrastructure of Microbial Communities (4)
Prerequisite: Electron Microscopy 103.
Lecture, 2 hours; Laboratory, 6 hours.
This course teaches students about the components of natural microbial communities; such as lichens and microbial mats and how they are intermeshed with their non-living environment; such as soil and rocks. Students participate in ecologically-oriented field excursions during which they collect their own samples. The samples are then brought back to the laboratory and prepared for electron and light microscopy. The full range of preparative techniques are used and students participate in in-depth data interpretation and analysis.

205 Electron Microscopy for Earth Sciences (3)
Prerequisite: Electron Microscopy 103.
Lecture, 1 hour; Laboratory, 4 hours.
In this course, students are guided through an earth science project from start to finish in order to learn how to organize and carry out a laboratory-based research project and to gain experience with the way in which microscopy can be used in earth science. Earth science involves the examination of natural materials on a variety of spatial scales. Students conduct field work in order to collect samples for investigation. They document the field site using digital photography. Samples are examined and imaged by light microscopy and prepared for electron microscopy. Emphasis for these samples is on scanning electron microscopy with energy dispersive X-ray analysis. Select samples are prepared for transmission electron microscopy. Basic principles and information on geology and geochemistry are provided. The instructor is an experienced field scientist and holds permits for collection of samples.

206 Electron Microscopy for Engineering (2)
Prerequisite: Electron Microscopy 103.
Lecture, 1 hour; Laboratory, 3 hours.
This course introduces students to the analysis of materials in engineering. A variety of materials are examined, providing students with an introduction to the techniques of selected area electron diffraction (SAED) for crystal structure, energy dispersive X-ray spectroscopy (EDS) for elemental composition, and high resolution imaging (allowing visualization of atoms) in the transmission electron microscope. Students also use the scanning electron microscope to examine microdevices and other engineering samples in order to familiarize themselves with the principles of failure analysis and appearance of components commonly encountered in the engineering industry. Lecture material describes nanotechnology and material science. Applications to systems and devices found on robotic spacecraft and in medical devices are emphasized.

207 Forensic Microscopy (4)
Prerequisite: Electron Microscopy 103.
Lecture, 1 hour; Laboratory, 6 hours.
This course provides students with training on a variety of state-of-the-art light and electron microscopes as well as basic training in forensic microscopy science. Examination of crime scene evidence by light and electron microscopes is essential for providing accurate data for law enforcement officials. Today, forensic scientists can choose from a variety of techniques to study this evidence, but perhaps the most important technique has been forensic microscopy. Forensic microscopy encompasses the identification and classification of a wide range of materials and substances: Impressions such
as fingerprints and footprints, fractured fragments such as broken tools and torn paper, trace evidence such as hairs and fibers, genetic markers, bullets, and handwriting. This is achieved through hands-on laboratory work using simulated crime scenarios. A field trip to a law enforcement crime lab is scheduled.

185 Directed Study - Electron Microscopy (1) CSU

285 Directed Study - Electron Microscopy (2) CSU

385 Directed Study - Electron Microscopy (3) CSU

Prerequisites: Electron Microscopy 103.

CONFERENCE 1 HOUR PER WEEK PER UNIT.

The above courses allow students to pursue Directed Study in Electron Microscopy on a contract basis under the direction of a supervising instructor.

This above courses are designed to provide a review of electron microscopy technical concepts and procedures. Preparation of required examination quality materials for the Electron Microscopy Society of America (EMSA) certification also is considered.

CREDIT LIMIT: A MAXIMUM OF 6 UNITS IN DIRECTED STUDY MAY BE TAKEN.

Emergency Department Assistant (EDA)

9 Emergency Department Assistant/First Responder (4)

LECTURE, 3 HOURS; LABORATORY, 3 HOURS.

This training program provides a basic foundation in emergency medical lifesaving procedures. The major portion of this program is directed towards the standardization of the training for emergency service personnel/first responders/emergency medical responders and those individuals requiring knowledge of effective lifesaving principles and procedures.

Health Information Technology (HTHTEK)

100 Introduction to Health Information Technology (3) CSU

LECTURE, 2 HOURS; LABORATORY, 2 HOURS.

This is an introduction to the Health Information Management (HIM) profession and the record keeping practices in alternative healthcare delivery systems. Emphasis is placed on the development, maintenance, and content of patient health records, including format and documentation requirements, filing and number system, medical staff organization, regulatory and accrediting agencies.

103 Introduction to Basic Coding (3)

Prerequisites: Health Information Technology 100, 133, 134 and Physiology 6.

LECTURE, 2 HOURS; LABORATORY, 2 HOURS.

This course introduces the use of the International Classification of Diseases Clinical Modification (CM) codes for diagnoses and Procedural Coding System (PCS) to code procedures. Students learn to analyze clinical disease processes, use diagnosis and procedural terminology, sequence and assign codes correctly using current coding manuals and computerized encoder.

106 Hospital Ethics and Law (2)

Prerequisite: Health Information Technology 100.

LECTURE, 2 HOURS.

This course introduces students to the concepts of confidentiality, ethics, healthcare legislation at various levels, and regulations relating to maintenance, release and use of health information. Topics covering medico-legal issues and court systems, liability, Health Information Portability and Accountability Act (HIPAA), and guidelines relevant to electronic health records are discussed.

108 Introduction to Pharmacology (1)

LECTURE, 1 HOUR.

This course is an introduction to basic pharmacology for healthcare professionals and how drugs relate to body systems, disease, and conditions. Topics covered include the history of drug laws, routes of drug administration, drug usage, drug interactions, and drug categories. Other topics include contraindications, precautions, side effects, use of drug references and other terminology related to the study of drugs.

110 Ambulatory Care Coding (3)

Prerequisites: Health Information Technology 134 and Physiology 6.

LECTURE, 2 HOURS; LABORATORY, 2 HOURS.

This course introduces the practice and principles of classification systems utilized in alternate healthcare facilities. Classification systems studied include Diagnostic and Statistical Manual of Mental Disorders (DSM), Systematized Nomenclature of Medicine (SNOMED), Ambulatory Payment Classification (APC), and Healthcare Common Procedural Coding System (HCPCS Level II) used for reimbursement of outpatient services rendered.

111 Patient Care Insurance Billing (3)

Prerequisites: Health Information Technology 100, 103, 106, 110, 133 and Physiology 6.

LECTURE 2 HOURS; LABORATORY 2 HOURS.

This course is designed to introduce medical billing techniques, and how to follow-up and collect billed claims. The internship/practicum component provides opportunities to learn how to complete and itemize statements for various types of insurance plans. Review of insurance cards, hands-on computer applications, and HCFA 1500 and UB92 forms with exposure to software and superbills also are considered.

133 Medical Terminology (2)

LECTURE, 3 HOURS.

This course emphasizes etymology of disease terms, nomenclature of word roots, prefixes, and suffixes related to body systems. Surgical procedures, laboratory tests, abbreviations and other terms related to the human body are discussed.

134 Introduction to Pathology (3)

Prerequisites: Computer Applications and Office Technologies 82, Health Information Technology 133, and Physiology 6.

LECTURE, 3 HOURS.

This course focuses on disease processes affecting human body systems including major signs and symptoms. Emphasis is placed on pathogenic causes and effects on normal physiologic functions in relation to degenerative, genetic, and pathogenic causes. Other topics covered include treatment modalities, pharmacology, and various clinical, Laboratory, and diagnostic assessments.
This is a supervised professional practical experience (PPE) in coding and abstracting of current inpatient and outpatient medical records in a healthcare facility. The PPE is designed to enable students to obtain actual non-paid work experience for 72 hours, which can be scheduled on full-time or part-time basis during the semester.

207 Introduction to Health Statistics (3)
Prerequisites: Health Information Technology 100 and Mathematics 125.
Lecture, 3 hours.
This course is an introduction to basic concepts of health statistics using both manual and computer compilations. A review of vital statistics include preparation of data from births, deaths, autopsies, post-operative surgeries, daily census, discharges and bed occupancy. An overview of research methodology and terminology will be included.

215 Advanced Inpatient Coding and Abstracting (3) CSU
Prerequisites: Health Information Technology 103 and 110, and Physiology 6.
Lecture, 2 hours; Laboratory, 2 hours.
This lecture and lab-based course includes intermediate and advanced study of the more complex areas of coding using International Classification of Diseases and Procedure codes, Current Procedural Terminology codes, and Diagnostic Related Group coding introduced in previous coding courses. Using case studies, students will apply abstracting skills and coding principles and guidelines related to complex diagnoses and procedures. The use of coding references and coding software are utilized in this course.

221 Quality Management and Leadership (3)
Prerequisite: Health Information Technology 106.
Corequisite: Health Information Technology 222.
Lecture, 3 hours.
This course covers concepts on effective communication, supervision and employment relations, development of policies and procedures, job descriptions, organizational and leadership skills, quality control and planning in a Health Information Management department.

222 Health Information Services Organization and Management (3)
Prerequisite: Health Information Technology 106.
Corequisite: Health Information Technology 221.
Lecture, 3 hours.
This course covers organizational management concepts as applied to supervision of health information services. Topics include roles and functions of teams/committees, leadership, communication and interpersonal skills, designing and implementing orientation/training programs, monitoring workflow, performance standards, revenue cycles, and organizational resources.

230 Electronic Health Records in the Health (3)
Prerequisites: Health Information Technology 106 and CAOT 82.
Corequisite: Health Information Technology 222.
Lecture, 3 hours.
This course is designed to provide health information students with the basic knowledge and skills necessary to use electronic health record (EHR) systems in the healthcare setting. The importance of national, regional, and state initiatives will be discussed in addition to practical experience using software.

241 Directed Practice in Health Information Procedures II (4)
Prerequisite: Health Information Technology 215.
Laboratory, 8 hours.
This is a supervised professional practical experience (PPE) in the health information management department of a hospital designed to enable students to obtain actual work experience in theoretical and application-based procedures previously studied. Students complete non-paid work experience for 144 hours, which can be scheduled on a full-time or part-time basis.

Microbiology (MICRO)
1 Introductory Microbiology (5) UC:CSU IGETC Area 5B, 5C
(UC Credit Limit: Maximum credit 1 course from Microbiology 1 and 20).
Prerequisites: Biology 3 or Biology 6 and Chemistry 65 or Chemistry 101.
Lecture, 3 hours; Laboratory, 6 hours.
This is an introductory microbiology course developed to prepare students for careers in biological sciences, medicine, dentistry, and allied health professions. This course explores the early history of microbiology, microbial classification, morphology, physiology and genetics. Emphasis is given to host-and pathogenic microbe interactions, immunology, virology, and on the effects of physical and chemical agents on microorganisms. Attention is also given to the microbiology of the air, water, soil, and milk and dairy products. The laboratory emphasizes fundamental microbiological techniques, concepts, and applications as well as current molecular diagnostic methods in microbial genetics and immunology.

10 Environmental Microbiology (4) UC:CSU IGETC Area 5B, 5C
Advisory: Biology 3
Lecture, 3 hours; Laboratory, 3 hours.
The purpose of this course is to introduce the student to environmental microbiology. The course emphasizes microbial interactions, the role of microorganisms in biogeochemical cycling, the distributions, functions, and effects of microorganisms in marine, freshwater, and terrestrial environments. The course presents physical and chemical methods used to control bacterial growth for medical, sanitary, industrial, and environmental (bioremediation) purposes. The laboratory component introduces the student to routine techniques used in the isolation, analysis, and study of soil, freshwater, and marine microorganisms. Molecular techniques are employed for analyzing freshwater contamination. In addition, the laboratory explores applications of microbiology in the food, water, and dairy industries. This course is designed to meet the content standards in environmental microbiology for public and healthcare professionals, microbiologists, environmental engineers, environmental technicians, environmental scientists and biodefense specialists.

20 General Microbiology (4) UC:CSU IGETC Area 5B, 5C
(UC Credit Limit: Maximum credit 1 course from Microbiology 1 and 20).
Advisory: Biology 3.
Lecture, 3 hours; Laboratory, 3 hours.
Micro 20 is the study of microorganisms, including their discovery, morphology, metabolism, genetics, growth requirements, and most importantly, their roles in infectious diseases. This course is recommended for nursing and allied health students. Other major topics covered are virology, immunology, and methods of control of
microorganisms. The labs include microscopy, aseptic technique in the handling of bacteria, and isolation, cultivation, staining, identification, and control of bacterial populations.

**Physiology (PHYSIOL)**

1 **Introduction to Human Physiology** (4) UC, CSU IGETC Area 5B, 5C

   (UC Credit Limit: Physiology 1 and Anatomy 1 combined is equivalent to Biology 20, maximum credit 8 units).

   Prerequisites: Anatomy 1 and one of the following - Chemistry 51, 56, 65, 101, 102, 201, 211, 212 and 231.

   LECTURE, 3 HOURS; LABORATORY, 3 HOURS.

   Human physiology is the study of the functions of the body. It covers all major systems of the body including the nervous, musculoskeletal, circulatory, respiratory, digestive, urinary, endocrine, and reproductive systems. Emphasis is given to the interactions and integration of multi-systems which are required to maintain homeostasis which is essential for life. Microscopic examination of selected organs and tissues, as well as laboratory measurements of physiological functions are covered during the laboratory sessions.

6 **Anatomy and Physiology** (6) CSU

   LECTURE 4 HOURS; LABORATORY 6 HOURS.

   This course is designed for majors in health information technology, medical records, and physical therapy, as well as other health-related programs. The course introduces organ systems, from simple to complex, while correlating how the proper integration of these systems maintains the normal operation of the body. Laboratory sessions include group discussions and written assignments that highlight the significance of course material through the introduction of clinical applications. Cat dissection is not a part of this course. This course fulfills the Anatomy/Physiology requirement for certificates and degrees in Health information Technology.

385 **Directed Study - Physiology** (3) CSU

   CONFERENCE 1 HOUR PER WEEK PER UNIT.

   This course allows students to pursue Directed Study in Physiology on a contract basis under the direction of a supervising instructor.

   CREDIT LIMIT: A MAXIMUM OF 6 UNITS IN DIRECTED STUDY MAY BE TAKEN.

**Respiratory Therapy (RESP TH)**

1 **Introduction to Respiratory Therapy** (1)

   LECTURE, 1 HOUR.

   This course provides an introduction to profession of Respiratory Therapy with emphasis on the duties, responsibilities, and qualifications of a Respiratory Therapist. Elementary introduction into the lung disease processes and basic data interpretation are also described.

2 **Fundamentals of Respiratory Therapy** (4)

   Prerequisites: Respiratory Therapy 21 or Physics 11.

   LECTURE, 3 HOURS; LABORATORY, 3 HOURS.

   This course covers the structure and functions of respiratory therapy equipment. It also acquaints the student with the maintenance and minor repair of most of the equipment used in the profession of respiratory care. Students are expected to be able to select, assemble, and correct malfunctions on most equipment used to provide respiratory care.

3 **Applications of Respiratory Therapy & Clinical Experience I** (5)

   Prerequisites: Respiratory Therapy 15.

   Corequisite: Respiratory Therapy 4 and 27.

   LABORATORY, 15 HOURS.

   This course provides students clinical application of diagnostic techniques, equipment, medications, and therapeutic procedures based on the national Clinical Practice Guidelines as well as local standards of practice. Students are assigned to a selection of clinical facilities where they complete clinical competencies under continuous direct supervision of experienced Respiratory Therapists and college faculty to validate competence in the skills required to care for patients in a variety of related cardiopulmonary conditions and/or diseases.

4 **Applications of Respiratory Therapy & Clinical Experience II** (5)

   Prerequisites: Respiratory Therapy 15.

   Corequisite: Respiratory Therapy 3.

   LABORATORY, 15 HOURS.

   This course provides students with clinical application of diagnostic techniques, equipment, medications, and therapeutic procedures based on the national Clinical Practice Guidelines as well as local standards of practice. Students are assigned to a selection of clinical facilities where they complete clinical competencies under continuous direct supervision of experienced Respiratory Therapists and college faculty to validate competence in the skills required to care for patients in a variety of related cardiopulmonary conditions and/or diseases.

5 **Applications of Respiratory Therapy & Clinical Experience III** (5)

   Corequisite: Respiratory Therapy 11.

   LABORATORY, 15 HOURS.

   In this course, the student is placed in a clinical setting to show competency in the following areas: Maintaining records and communication information and maintaining a patient's airway including care of artificial airways, achieving adequate respiratory support, evaluating and monitoring patient's objective, and Subject's responses to respiratory care.

6 **Respiratory Physiology** (4)

   Prerequisite: Respiratory Therapy 21.

   Advisory: Health Information Technology 133.

   LECTURE, 4 HOURS.

   This course presents the physiology of the cardiopulmonary system from a clinical perspective including a review of cardiopulmonary and renal anatomy and physiology. Also included is an extensive presentation of pulmonary ventilation, gas transport and diffusion, cardiopulmonary circulation, ventilation/perfusion balance, acid-base balance, and mechanics and neurologic control of breathing. Emphasis is placed on the bedside interpretation of the acid-base status of patients that is used in the management of clinical respiratory patients.

7 **Applied Medicine and Pathology** (3)

   Prerequisite: Respiratory Therapy 6.

   Advisory: Health Information Technology 133.

   LECTURE, 3 HOURS.

   In this course, the physiology, pathology, diagnosis, and treatment of the common diseases and disorders of the cardiovascular, respiratory, and neuromuscular systems are covered in detail. Techniques of laboratory evaluation and specific monitoring methods are discussed. A review of cardiopulmonary pharmacology, including anti-asthmatic and anti-infective drugs, is included.
11 Applications of Respiratory Therapy & Clinical Experience IV (5)
Prerequisite: Respiratory Therapy 4.
LABORATORY, 15 HOURS.
In this clinical experience course, the student is assessed on competencies to perform independently and modify therapeutic procedures based on patient’s response; recommending modifications in the respiratory care plan based on the patient’s response; the appropriateness of the prescribed respiratory care plan and recommending modifications when indicated by data; initiating, conducting, or modifying respiratory care techniques in an emergency setting; acting as an assistant to the physician performing special procedures; and initiating and conducting pulmonary rehabilitation and home care.

15 Clinical Experience (4)
Prerequisites: Respiratory Therapy 2.
LABORATORY, 11 HOURS.
This course provides clinical insight into the indications, contraindication, administration, and assessment of essential therapeutic procedures. Students are introduced to problem-based learning and critical thinking skills crucial in evaluating, creating, and modifying a respiratory care plan. Information gathering and decision-making comprehension is developed with the use of case study-based computerized clinical simulations. Introduction into the clinical setting is initiated with students being placed into the college’s various contracted clinical affiliates.

21 Physics for Respiratory Care (3)
Lecture, 3 hours.
This course presents an overview of the principles of physics that apply to respiratory care equipment, technology, and patient care including the behavior of gases, electricity and electrical safety. Internal heat, temperature scales, and measurement are covered in detail. Molecular phenomena such as osmosis and dialysis, and the mechanics of the cardiovascular and respiratory systems are applied to bedside patient care. Principles of electricity and hospital electrical safety from both a patient and practitioner perspective are emphasized.

23 Advanced Respiratory Pathophysiology (1) CSU
Prerequisite: Respiratory Therapy 6.
Co-requisite: Respiratory Therapy 7.
Advisory: Health Information Technology 133.
Lecture, 1 hour.
This course covers the pathology, assessment, diagnosis, and treatment of the common diseases and disorders of the respiratory, cardiovascular, and neuromuscular systems in detail. Emphasis is placed on the practice of patient assessment techniques, including common bedside and laboratory evaluation methods, specific patient monitoring methods, medical record review, and communication and documentation skills practice.

27 Physician Respiratory Care Clinical Rounds I (1) CSU
LABORATORY, 4 HOURS.
This course provides a hospital setting in which the Respiratory Care student accompanies a Physician on patient clinical rounds to assess and determine the appropriateness of the prescribed respiratory care plan. The student also participates in the development of the respiratory care plan. Students are given computer clinical simulations based on respiratory care scenario’s to solve, using clinical information gathering and decision making skills. In addition, CAI (computer assisted instruction) software is used to enhance the student’s knowledge in specialty areas. The student critiques respiratory therapy case studies making recommendations, modification and discusses appropriate care. The use of critical thinking and problem solving skills are developed and implemented during classroom case study presentations. The student also participates in the development of the respiratory care plan, confers/interacts with the RT program’s Medical Director, and discusses patient assessment and respiratory therapist expectations from the physician’s perspective.

28 Physician Respiratory Care Clinical Rounds II (1)
Co-requisites: Respiratory Therapy 5 and 11.
LABORATORY, 4 HOURS.
This course provides a hospital setting in which the Respiratory Care student accompanies a physician on patient clinical rounds to assess and determine the appropriateness of the prescribed respiratory care plan. The student also participates in the development of the respiratory care plan. Students are given computer clinical simulations based on respiratory care scenarios to solve, using clinical information-gathering and decision-making skills. In addition, CAI (computer assisted instruction) software is used to enhance the student’s knowledge in specialty areas.

29 Neonatal and Pediatric Respiratory Therapy (4) CSU
Lecture, 4 hours.
This course presents prenatal development, high risk pregnancy, and normal labor and delivery as they relate to respiratory care. Assessment of the newborn and pediatric patient is covered as are neonatal and pediatric diseases and disorders with an emphasis on the respiratory care interventions, techniques, and equipment used in neonatal and pediatric patient care.

30 Adult Critical Care Monitoring and Diagnostics (5)
Prerequisite: Respiratory Therapy 6.
Lecture, 3 hours.
This course presents current techniques of monitoring the critically ill adult patient. This includes electrocardiography, cardiovascular/hemodynamic monitoring, capnography, and pulmonary function testing. Cardiovascular pharmacology and common approaches to supporting the unstable intensive care patient are presented. Advanced Cardiac Life Support (ACLS) algorithms for treatment of the patient with acute coronary syndrome and other related disorders are reviewed.

31 Neonatal Resuscitation (1) CSU
Lecture, 1 hour.
This course is based on the American Academy of Pediatrics (AAP) and American Heart Associations international guidelines for emergency cardiovascular care of the newborn.