**Course Description:**

Students will be able to collaborate with the respiratory therapist to administer care to patients with heart and lung disorders requiring humidity, medial gas and aerosol therapies. Students will perform diagnostic tests, clean and maintain equipment. Students observe patient responses and progress. Students apply concepts of infection control, basic therapeutic and diagnostic modalities.

**Strand 2. Human Body System**

Learners will describe the various anatomy, physiology, and pathophysiology associated with body systems and alterations related to the normal developmental process, obtain a health history, perform an evaluation of the body systems, and document using medical terminology.

**Outcome 2.1. Human Anatomy, Physiology, and Pathophysiology**

Describe the various human body systems, alterations related to the normal developmental process and possible dysfunctions.

**Competencies**

2.1.1. Identify body planes, directions, cavities, quadrants and regions.

2.1.2. Describe the physical characteristics, components and function of blood (e.g., ABO, Rh, blood cells, precursors and respiratory).

2.1.3. Describe the structures and functions of the cardiovascular system and trace the path of blood and identify factors affecting blood flow.

2.1.4. Describe how blood pressure is controlled and identify factors influencing changes in blood pressure.

2.1.5. Describe the structures and functions of the respiratory system.

2.1.6. Describe function of nerve tissue, nervous system, including regions of the brain.

2.1.7. Describe the structures and functions of the musculoskeletal system.

2.1.8. Describe the structures and functions of the digestive/excretory system.

2.1.9. Describe the structures and functions of the renal/urinary system.

2.1.10. Describe the structures and functions of the immune system.

2.1.11. Describe the structures and functions of the endocrine system.

2.1.12. Differentiate between the structures and functions of the male and female reproductive systems.

2.1.13. Describe the structures and functions of the integumentary system.

2.1.14. Describe the difference between pathology and physiology and the conditions typically observed during a disease state.

*An “X” indicates that the pathway applies to the outcome.*

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| **Pathways** | X | Health Information Management | x | Medical Bioscience | X | Allied Health and Nursing | | | X | Exercise Science and Sports Medicine |
| **Green Practices** |  | Green-specific |  | Context-dependent | | |  | Does not apply | | |

**Outcome 2.2. Evaluate Body Systems**

Assess the biopsychosocial state of the patient and document using medical terminology.

**Competencies**

2.2.1. Provide privacy and demonstrate sensitivity for diverse populations.

2.2.2. Contact interpretive services for non‐English speaking and English Language Learners (ELL).

2.2.4. Obtain and document vital signs.

2.2.5. Identify and categorize level of consciousness and cognition.

2.2.6. Identify and measure pupil reactivity and accommodation.

2.2.7. Identify site, onset, type, quality and degree of pain.

2.2.9. Auscultate lungs for abnormal breath sounds.

2.2.10. Describe pulmonary function testing (e.g., vital capacity, tidal volumes, total lung capacity).

2.2.15. Measure and document excessive body fluid loss.

2.2.16. Identify symptoms of substance abuse.

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**Outcome 2.3. Medical Terminology**

Decipher medical terms through word origin and structure with an emphasis on derivation, meaning, pronunciation and spelling.

**Competencies**

2.3.1. Build and decipher medical term meanings by identifying and using word elements (e.g., word

roots, prefixes, suffixes, combining forms).

2.3.2. Apply the rules used to build singular and plural forms of medical terminology derived from

the Greek and Latin language.

2.3.3. Use diagnostic, symptomatic and procedural terms to read and interpret various medical

reports.

2.3.4. Use abbreviations and symbols to identify anatomical, physiological and pathological classifications and the associated medical specialties and procedures.

2.3.5. Communicate medical instructions and prepare medical documents using medical terminology.

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**Strand 3. Therapeutic Interventions**

Learners will assist with improving the individual's health outcome and quality of life throughout the lifespan within their scope of practice.

**Outcome 3.1. Environmental Interventions**

Create and maintain a safe, sterile, efficient, and developmentally appropriate

care environment.

**Competencies**

3.1.1. Use standard precaution guidelines, recommended by the governing bodies for reducing the risk of transmission of pathogens.

3.1.2. Maintain individuals’ rights, respect individual’s choices and describe informed consent.

3.1.3. Describe confidentiality guidelines in the Health Insurance Portability and Accountability Act

(HIPAA).

3.1.5. Identify and remove environmental and electrical hazards to decrease the risk of falls, injury, or ingestion of dangerous materials.

3.1.6. Identify risks associated with chemical, electrical, and aquatic elements in the work environment.

3.1.7. Describe and follow the precautions used in oxygen therapy and pressurized gases.

3.1.8. Clean, store, or dispose of supplies, specimens and laboratory glassware following protocol and standard precautions.

3.1.9. Determine bleeding risk factors and implement precautions.

3.1.12. Differentiate and apply principles of aseptic and sterile techniques.

3.1.14. Use principles of ergonomics to perform therapeutic interventions.

3.1.15. Account for all instruments, supplies and equipment.

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| **Green Practices** |  | Green-specific |  | Context-dependent | | |  | Does not apply | | |

**Outcome 3.2. Health Promotion Interventions**

Identify and communicate health promotion and wellness to individuals, support systems, and communities.

**Competencies**

3.2.1. Describe the national and state health agenda for wellness.

3.2.5. Communicate relevant information to promote, maintain and restore overall wellness.

3.2.6. Communicate the medical benefits and risks associated with immunizations and other preventative care across the life span.

3.2.7. Identify the components of wellness.

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| **Green Practices** |  | Green-specific |  | Context-dependent | | |  | Does not apply | | |

**Outcome 3.3. Pharmaceutical Interventions**

Prepare, administer, store and document medications, reactions and outcomes according to laws, regulations and authorized health care provider orders and protocols.

**Competencies**

3.3.1. Identify and define terms related to drugs, pharmacology and medicines.

3.3.2. Identify drug classifications.

3.3.3. Recognize trade and generic names of prescription medications, over‐the‐ counter drugs and herbal preparations.

3.3.4. Identify and communicate elements of a prescription and relevant information.

3.3.5. Store drugs in regard to heat, light, moisture and security systems.

3.3.6. Describe the therapeutic value of the medication being taken and how to evaluate the

individual’s outcome.

3.3.7. List and describe the routes of drug administration with various forms of drugs.

3.3.8. Prepare medications as indicated on the prescription or medication order.

3.3.9. Reconcile medication, immunization records, and report errors.

3.3.10. Calculate medication dosages.

3.3.11. Administer and document medications ensuring the correct medication, dosage, route, time, person and method.

3.3.12. Communicate the potential side effects and adverse reactions to medical interventions and determine the individual’s level of understanding.

3.3.13. Identify altered mental states (e.g., hallucinogens, sensory deprivation) and corrective actions.

3.3.14. Identify fluid and electrolyte imbalances, side‐effects and adverse reactions.

3.3.15. Apply standard practices and procedures that prevent contamination of pharmaceutical products.

3.3.18. Fill a prescription by calculating the amount of the drug to dispense, identifying the number of days for the supply and documenting the dosage regimen from a medication order.

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| **Green Practices** |  | Green-specific |  | Context-dependent | | |  | Does not apply | | |

**Outcome 3.4. Emergency Interventions**

Identify, activate and respond to medical, environmental, mechanical

and natural emergencies and document interventions and outcomes.

**Competencies**

3.4.1. Perform healthcare provider cardiopulmonary resuscitation (CPR) and automated external defibrillation (AED).

3.4.2. Rescuer Duties, Victim and Rescuer Safety

3.4.3. Recognize and Treat breathing problems.

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**Strand 4. Assistive Care**

Learners demonstrate the skills and knowledge to provide personal assistive care for the activities of daily living to a variety of individuals across stages of development within their scope of practice.

**Outcome 4.1. Scope of Practice**

Describe the roles and responsibilities of assistive personnel and identify the medical specialists who treat disorders of each body system.

**Competencies**

4.1.1. Describe the guidelines of the governing body concerning abuse, mistreatment, neglect and misappropriation of an individual’s property.

4.1.2. Recognize and document changes in an individual’s condition and inform supervisors.

4.1.3. Provide input to and work within an individualized plan of care developed by the interdisciplinary team.

4.1.4. Describe the primary purpose of different healthcare settings.

4.1.5. Identify the medical specialists who treat disorders of each body system.

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| **Green** |  | Green-specific |  | Context-dependent | | |  | Does not apply | | |

**Outcome 4.2. Therapeutic Communication and Interpersonal Skills**

Demonstrate and document communication techniques and behaviors when communicating and interacting with individuals.

**Competencies**

4.2.1. Interpret non‐verbal communication, including gestures, posture, touch, facial expressions, eye contact, body movements, avoidance and appearance.

4.2.2. Describe the importance of maintaining an individual’s personal space.

4.2.3. Identify the importance of empathy in interpersonal relationships and the need for kindness, patience and listening.

4.2.4. Maintain aids that promote oral, auditory and visual health (e.g., eye glasses, hearing aids,

dentures).

4.2.5. Arrange food and utensils on the meal tray in a clock fashion for visually impaired individuals.

4.2.6. Position an individual for meals to avoid choking and assist in feeding.

4.2.7. Maintain a proper environment for eating (e.g., noxious odors, contaminated items, loud

noises).

4.2.8. Provide aids to facilitate communication for speech impaired individuals (e.g., picture cards,

slates, notepads).

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| **Pathways** | X | Health Information Management | x | Medical Bioscience | X | Allied Health and Nursing | | | X | Exercise Science and Sports Medicine |
| **Green** |  | Green-specific |  | Context-dependent | | |  | Does not apply | | |

**Outcome 4.3. Pathogenic Microorganisms, Infection Control and Infection**

Use principles of infection control to prevent the growth and spread of pathogenic microorganisms and infection.

**Competencies**

4.3.1. Describe the chain of infection.

4.3.2. Describe mechanisms for the spread of infection.

4.3.3. Describe methods of controlling or eliminating microorganisms and the importance of practices that hinder the spread of infection.

4.3.4. Identify and use appropriate level of personal protective equipment (PPE) when encountering body fluids, potential of splashing, or respiratory droplets.

4.3.5. Demonstrate various decontamination techniques and procedures.

4.3.6. Identify and follow standard precaution guidelines.

4.3.7. Identify, follow, and document isolation precautions.

4.3.8. Identify signs and symptoms of infection.

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| **Green** |  | Green-specific |  | Context-dependent | | |  | Does not apply | | |

**Strand 5. Bioscience Research and Development**

Learners will demonstrate the skills and knowledge of interpreting laboratory requests, using protective clothing and hazardous material containment, specimen collection procedures, a variety of laboratory testing and techniques and maintenance of laboratory equipment and supplies.

**Outcome 5.1. Handling, Preparation, Storage and Disposal**

Follow standard operating protocols for handling, preparing, storing and disposing of

specimens, supplies and equipment.

**Competencies**

5.1.1. Use standard operating procedures for the safe use of instruments, equipment and gas

cylinders.

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| **Pathways** | X | Health Information Management | x | Medical Bioscience | X | Allied Health and Nursing | | | X | Exercise Science and Sports Medicine |
| **Green Practices** |  | Green-specific |  | Context-dependent | | |  | Does not apply | | |

**Outcome 5.2. Foundations of Chemistry**

Use standard operating procedure (SOP) when performing systematic and methodical application of general and organic chemistry principles to examine the structures, their functions, their binding to other molecules and the methodologies for their purification and characterization.

**Competencies**

5.2.18. Calculate conversions of metric and standard units

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| **Green Practices** |  | Green-specific |  | Context-dependent | | |  | Does not apply | | |

**Outcome 5.3. Microbiology Testing and Technology**

Describe the morphology and process of reproduction of microorganisms important in clinical disease and biotechnology applications and perform assays as a diagnostic tool to detect the presence of a pathogen when handling and storing specimens and preservatives for biologicals.

**Competencies**

5.3.1. Explain microbial taxonomy and classification systems and use them to identify microbial

organisms.

5.3.2. Compare and contrast cellular structure and functions of prokaryotic and eukaryotic cells.

5.3.3. Differentiate between bacterial metabolism, reproduction, cell structures, and their functions.

5.3.4. Identify aerobic bacteria through morphological, physical and biochemical properties.

5.3.5. Describe the structure of viruses and differentiate between types.

5.3.7. Describe types and features of passive and active transport systems.

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**Outcome 5.9. Clinical Laboratory Techniques and Procedures**

Perform and interpret clinical laboratory techniques and procedures.

**Competencies**

5.9.3. Differentiate between aseptic and sterile procedures when collecting specimens and maintain

bio‐hazardous materials procedures (e.g., urine, feces, sputum, blood).

5.9.4. Discuss the methods of blood collection, specimen processing and labeling procedures and the

potential problems that may occur.

5.9.7. Identify resources needed for special procedures and demonstrate knowledge of special

phlebotomy collection procedures (e.g., phenylketonuria [PKU], galactosemia, blood

donations, blood cultures).

5.9.8. Differentiate between specimen collection, storage and handling techniques (e.g., temperature, light, time, humidity).

5.9.9. Determine order of draw and appropriate anticoagulants for ordered tests and correlate tube

stopper colors with tube additives and their actions.

5.9.11. Prepare peripheral blood smears and discuss testing volumes and methods for minimizing

excessive blood collection volumes.

5.9.13. Identify major routine tests performed in clinical lab sections (e.g., blood bank, chemistry, hematology, serology, microbiology, urinalysis).

5.9.15. Perform Clinical Laboratory Improvement Act (CLIA) waived tests (e.g., dipstick or tablet reagent urinalysis, blood glucose by glucose monitoring devices, ovulation tests, urine pregnancy tests).

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| **Pathways** | X | Health Information Management | x | Medical Bioscience | X | Allied Health and Nursing | | | X | Exercise Science and Sports Medicine |
| **Green Practices** |  | Green-specific |  | Context-dependent | | |  | Does not apply | | |

**Strand 6. Health Information Management**

Learners will demonstrate basic computer literacy, health information literacy and skills, confidentially and privacy of health records, information security and basic skills in the use of electronic health records.

**Outcome 6.1. Health Information Literacy**

Apply principles of systems operations used to capture, retrieve and maintain information from internal and external sources.

**Competencies**

6.1.1. Define health information management (HIM) and differentiate among data, information and

competency.

6.1.4. Use health record data collection tools (e.g., electronic medical/health records, meaningful use, document templates).

6.1.7. Apply concepts of health record documentation requirements of external agencies and organizations (e.g., accrediting bodies, regulatory bodies, professional review organizations, licensure, reimbursement, discipline‐specific, evidence-based good practice).

6.1.8. Describe typical internal organizational health record documentation requirements, policies and procedures.

6.1.9. Explain how to apply policies and procedures to ensure organizational compliance with regulations and standards, including Medicare, Medicaid, and other third party payers.

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| **Green Practices** |  | Green-specific |  | Context-dependent | | |  | Does not apply | | |

**Outcome 6.2. Confidentiality, Privacy and Security**

Apply the fundamentals of confidentiality, privacy and security to communicate health/medical information accurately and within legal/regulatory bounds to other external entities.

**Competencies**

6.2.1. Identify components of the legal system.

6.2.4. Identify what constitutes the authorized access, release and use of personal health information.

6.2.5. Distinguish confidential and non‐confidential information, and document and prioritize requests for personal health information according to privacy and confidentiality guidelines.

6.2.8. Implement administrative, physical and technical safeguards to maintain data integrity and validity.

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| **Pathways** | X | Health Information Management | x | Medical Bioscience | X | Allied Health and Nursing | | | X | Exercise Science and Sports Medicine |
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**Outcome 6.3. Electronic Health Records and Coding**

Perform functions within electronic health records (EHRs) and electronic medical records (EMRs) to ensure accurate information, retrieve information and maintain data.

**Competencies**

6.3.2. Locate and retrieve information in the electronic medical/health records and other sources.

6.3.3. Input and use health information applying management principles to ensure quality, compliance, and integrity.

6.3.4. Apply methods to ensure authenticity, timeliness, and accuracy of health data entries.

6.3.5. Document scope of practice information in an electronic health/medical record.

6.3.6. Access and apply reference material available through an electronic health/medical record or other reference system.

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| **Green Practices** |  | Green-specific |  | Context-dependent | | |  | Does not apply | | |