**Course Description:**

Students will use fundamental qualitative analysis to study the human body’s responses to exercise. Topics include respiratory response to exercise, metabolism and energy production, body composition, healing rate of tissues, and cardiovascular conditioning. Students will use therapeutic exercise and the application of modalities to restore or facilitate normal function or development. Developing and implementing exercise test protocols, and emergency procedures will be emphasized.

**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.

2.1.3. 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.

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

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

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

**Outcome: 2.2. Evaluate Body Systems**

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

**Competencies**

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.

2.2.8. Identify factors affecting degree and quality of pain.

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

2.2.13. Measure muscle strength.

2.2.14. Identify various wounds and skin conditions.

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

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

**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, and 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).

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

3.1.14. Use principles of ergonomics to perform therapeutic interventions.

3.1.15. Account for all instruments, supplies and equipment.

3.1.16. Control the level of distractions and noise in a patient care environment.

3.1.17. Identify and respond to emergency call lights and alarms.

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

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

**Outcome: 3.2. Health Promotion Interventions**

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

**Competencies**

3.2.2. Measure and classify body composition, neuromuscular flexibility, agility, balance, coordination and proprioception.

3.2.3. Measure and classify an individual’s cardiorespiratory fitness, muscular strength, endurance and power.

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

3.2.6. Communicate the importance of age‐appropriate healthy eating, exercise and preventative

medicine.

3.2.7. Identify the components of wellness.

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

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| **Pathways** |  | Health Information Management | X | Medical Bioscience | X | Allied Health and Nursing | |  | Exercise Science and Sports Medicine | X | Therapeutic Services |
| **Green Practices** |  | Green-specific |  | Context-dependent | | X | 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**

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

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| **Pathways** |  | Health Information Management | X | Medical Bioscience | X | Allied Health and Nursing | |  | Exercise Science and Sports Medicine | X | Therapeutic Services |
| **Green Practices** |  | Green-specific |  | Context-dependent | | X | 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.

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

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

**Outcome: 3.5. Nutritional Interventions**

Identify nutritional needs and communicate information to the individual and support system.

**Competencies**

3.5.1. Describe the role and effects of carbohydrates, proteins, fats, electrolytes, minerals, vitamins and water in body systems.

3.5.2. Calculate the energy of carbohydrates, proteins and fats.

3.5.3. Describe nutritional supplements and ergogenic aids and potential effects.

3.5.4. Calculate caloric needs of the individual and refer the individual to nutritional resources for optimal health and performance.

3.5.5. Provide diet and hydration guidelines to maintain optimal health.

3.5.10. Measure and classify based on anthropometric measurements.

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

**Outcome: 3.6.**  **Exercise and Rehabilitative Intervention**

Evaluate, define and perform training, and document therapies to enhance mobility and muscle strength.

**Competencies**

3.6.2. Evaluate kinesthetic awareness as related to functional movement.

3.6.3. Design and implement an individualized training program by using interval, continuous and circuit training techniques.

3.6.5. Apply techniques to enhance neuromuscular flexibility, muscle strength, endurance and flexibility.

3.6.6. Perform active, passive, assistive and resistive Range‐of‐Motion (ROM) on joints.

3.6.7. Identify aquatic exercises for improvement of ROM, strength and cardiovascular benefits.

3.6.8. Modify physical activity to accommodate specific medical conditions and stages of development.

3.6.9. Fit ambulatory aids and perform gait training.

3.6.10. Apply protective taping, wrapping, padding and protective equipment to upper and lower extremities.

3.6.11. Describe techniques to disrupt the interpretation of pain.

3.6.12. Apply evidence‐based therapeutic interventions (e.g., cryotherapy, thermotherapy, hydrotherapy, light therapy, electrotherapy).

3.6.13. Apply the frequency, intensity, time, type (FITT) principle to health and skill conditioning activities.

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

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

**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: 4.2. 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.

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

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

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

**Strand 6. Health Information Management**

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

**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**

6.2.2. Differentiate between types of evidence used in healthcare litigation, process of discovery and

the permissible use of evidence in litigation, recognizing the elements of negligence and

medical malpractice.

6.2.3. Interpret regulatory requirements, standards of practice, legal responsibility, limitations and implications of actions and describe the appropriate avenues for reporting incidences of malpractice or negligence.

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.

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

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