**Course Description:**

Students will demonstrate knowledge and skills associated with the practice of dentistry. Topics include principles of dental procedures and comprehensive dental care; infection control in dentistry; and dental specialties including radiology and laboratory procedures. Students will perform chair-side assisting techniques including instrument sterilization, fluoride applications, dietary analysis, and assisting physician. Emphasis is given to terminology, instruments and equipment, and patient communication. Additionally, students maintain accounts and inventory, records and appointments.

**Strand 1. Business Operations/21st Century Skills**

Learners apply principles of economics, business management, marketing and employability in an entrepreneur, manager and employee role to the leadership, planning, developing and analyzing of business enterprises related to the career field.

**Outcome 1.1 Employability Skills**

Develop career awareness and employability skills (e.g., face‐to‐face, online) needed for gaining maintaining employment in diverse business settings.

* + 1. Identify the knowledge, skills and abilities necessary to succeed in careers.
    2. Identify the scope of career opportunities and the requirements for education, training, certification, licensure, and experience.

1.1.8 Identify the correlation between emotions, behavior and appearance and manage those to establish and maintain professionalism.

1.1.12. Identify healthy lifestyles that reduce the risk of chronic disease, unsafe habits and abusive behavior.

**Outcome 1.3 Business Ethics and Law**

Analyze how professional, ethical and legal behavior contributes to continuous improvement in organizational performance and regulatory compliance.

1.3.3. Use ethical character traits consistent with workplace standards (e.g., honesty, personal integrity, compassion, justice).

**Outcome 1.5 Global Environment**

Evaluate how beliefs, values, attitudes and behaviors influence organizational strategies and goals.

1.5.3. Use cultural intelligence to interact with individuals from diverse cultural settings.

1.5.7. Use intercultural communication skills to exchange ideas and create meaning.

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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 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 sensory system, related structures and functions.

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).

2.2.3. Use developmentally appropriate language to systematically review disease processes related to each body system.

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.

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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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**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).

3.1.4. Decrease the risk of injury to individuals or others by using authorized strategies.

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.

3.1.10. Implement disaster preparedness response for emergency situations.

3.1.11. Identify risk factors of exposure to hazardous materials and demonstrate safety precautions.

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

3.1.13. Follow Occupational Health and Safety Administration protocol for exposure and disposal of contaminated hazardous waste.

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.

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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**

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

3.3.12. 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.

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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. Recognize rescuer duties, victim and rescuer safety.

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

**Outcome 3.7. Dental Interventions**

Assist in the application of dental and oral interventions and document with dental terminology and symbols.

**Competencies**

3.7.1. Identify dental anatomy, surfaces, and tooth numbering systems.

3.7.2. Explain the relationship between oral health and nutritional factors related to dentistry.

3.7.3. Summarize the uses and effects of substances on the oral cavity and teeth.

3.7.4. Compare and contrast various specialties in dentistry.

3.7.5. Identify instruments and supplies used in dental procedures.

3.7.6. Identify dental emergencies and assist in treatment.

3.7.7. Describe dental pain management.

3.7.8. Describe the science of radiation production, safety and protection.

3.7.9. Describe the composition, sizes, types, mounting and storage procedures of dental x‐ray.

3.7.10. Describe principles of digital radiography and equipment needed.

3.7.11. Describe common x‐ray production and processing errors and their corrections.

3.7.12. Describe the paralleling and bisecting x‐ray techniques and needed equipment.

3.7.13. Take intraoral and extraoral photographs and radiographs.

3.7.14. Identify differences in common procedures and equipment used in pediatric and adult dentistry.

3.7.15. Prepare individuals for dental intervention.

3.7.16. Prepare dental materials for placement.

3.7.17. Perform dental chair‐side assisting techniques.

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| **Green** |  | Green-specific |  | Context-dependent | | |  | 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 4.1. 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.

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| **Green Practices** |  | 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., eyeglasses, hearing aids, dentures).

**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 Practices** |  | 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 personal protective equipment 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.

5.1.2. Locate and use safety data sheets to prepare and interpret labels for chemicals, supplies, and to identify hazards associated with handling and storing chemical materials.

5.1.3. Neutralize acids, bases, or caustic solutions for handling and disposal.

5.1.4. Recognize clean room integrity using Standard Operating Procedures (SOPs).

5.1.5. Sample, monitor and record the environmental conditions of the facility (e.g. air quality, humidity, temperature, microbial contaminations).

5.1.6. Adjust, calibrate, maintain and perform systems diagnostics on laboratory equipment per standard operating procedure (SOP) and equipment specifications.

5.1.7. Maintain equipment logs and determine when to perform, implement, or schedule preventive maintenance and/or systems updates.

5.1.8. Verify expiration dates and lot numbers.

5.1.9. Implement a chemical inventory system that includes all pertinent information regarding stability, hazards and sensitivity per standard operating procedure (SOP).

5.1.10. Maintain an inventory system for manufactured products per standard operating procedure (SOP).

5.1.11. Maintain separate in‐processing, quarantine and release areas.

5.1.12. Monitor and maintain animal behavior, welfare and husbandry per standard operating procedure (SOP).

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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.

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

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

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**Outcome 5.7. Fermentation Technology**

Describe and perform fermentation procedures.

**Competencies**

5.7.2. Explain the principles and importance of sterility in industrial fermentations.

5.7.3. Explain the temperature/pressure relationship of saturated steam to sterilization.

5.7.4. Explain the effect of entrapped air on sterilization effectiveness.

5.7.5. Compare sterilization methods using dry heat versus moist heat.

5.7.6. Demonstrate sterilization by micro‐filtration.

5.7.7. Explain the effect of suspended solids in fermentation media on sterilization effectiveness.

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

Perform and interpret clinical laboratory techniques and procedures.

**Competencies**

5.9.1. Maintain the integrity of a clinical sample, including patient/client identification and chain of custody and explain how to adhere to chain‐of‐custody guidelines when required (e.g., forensic studies, drug screen).

5.9.2. Describe control substance procedures, protocols, documentation and labeling techniques.

5.9.4. Discuss the methods of blood collection, specimen processing and labeling procedures and the potential problems that may occur.

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

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| **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, confidentiality 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.

6.1.2. Differentiate between primary and secondary health data sources and databases.

6.1.3. Describe the principles of architecture, data standards, and use of health information systems.

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

6.1.5. Recognize standard data definitions, vocabularies, terminologies, nomenclatures (e.g., systematically organized computer processable collection of medical terms (SNOMED‐CT), classifications (e.g., International Statistical Classification of Diseases and Related Health Problems (ICD-10), Healthcare Common Procedure Coding System (HCPCS), Current Procedural Terminology (CPT), and relevant healthcare data sets (e.g., The Outcome and Assessment Information Set (OASIS), epic, The Healthcare Effectiveness Data and Information Set (HEDIS), Uniform Hospital Discharge Data Set (UHDDS) as used in the organization’s health information systems.

6.1.6. Differentiate between the types and content of patient health records and the data collected (e.g., paper‐based, electronic medical/health records, personal health records, clearinghouse).

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.

6.2.3. 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.

6.2.6. Use networks, including intranet and internet, according to security and privacy policies and procedures.

6.2.7. Describe the possible consequences of inappropriate use of health information.

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

6.2.9. Describe elements that are included in the design of audit trails and data quality monitoring programs.

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

**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**

6.3.1. Create and update documents within the electronic health record and electronic health systems.

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.

6.3.7. Resolve minor technology problems associated with using an electronic health/medical record.

6.3.8. Follow access protocols for entry to an electronic health/medical record.

6.3.9. Manage documents within the electronic health/medical record using standard protocol.

6.3.10. Complete health information management (HIM) functions (e.g., scanning, transcription, voice recognition, releasing information) in a paper or electronic environment.

6.3.11. Perform procedural and diagnostic coding according to federal, state and thirty party payer guidelines.

6.3.12. Complete the common insurance claim forms ensuring federal, state and third‐party insurance reimbursements are included and complete payer compliance claim forms.

6.3.13. Apply accurate medical terminology to electronic health/medical records.