**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 2. Human Body System**

Learners will discuss the various forms, functions and pathophysiology associated with body systems and alterations related to the normal aging process, obtain a health history, perform an evaluation of body systems and document using medical terminology.

**Outcome 2.1. Human Body Form, Function and Pathophysiology**

Discuss the various human body systems, alterations related to the normal aging process and possible dysfunctions.

**Competencies**

2.1.1. Describe the physical characteristics, components and function of blood (e.g., ABO, Rh, blood

cells, precursors and respiratory).

2.1.2. Describe the cardiovascular system and trace the path of blood and factors affecting blood

flow.

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

2.1.4. Describe the function and components of the respiratory system and pulmonary ventilation

and factors influencing respiratory rates.

2.1.5. Describe nerve tissue and the nervous system, including regions of the brain and their

function, the spinal nerves, signal transmission at synapses and the sympathetic and

parasympathetic system.

2.1.6. Describe the musculoskeletal system, including skeletal, cardiac and smooth muscle, various

bone structures and the role of bone marrow and joints and injuries.

2.1.7. Describe the gastrointestinal system, including structures of chewing, swallowing, digestion

and elimination and the role of accessory organs including the liver, pancreas and gallbladder.

2.1.8. Describe the urinary system structures and principles of glomerular filtration, electrolyte

exchanges and their role in the production of red blood cells and the control of blood

pressure.

2.1.9. Describe the immune system and the lymphatic system's role in immunity.

2.1.10. Describe the sensory system, related structures and functions.

2.1.11. Describe the endocrine system, its structures and the role of hormones.

2.1.12. Differentiate between the male and female reproductive system, structures and function.

2.1.13. Describe the integumentary system, related structures and functions.

2.1.14. Describe the difference between pathology and physiology and the conditions typically

observed during a disease state.

2.1.15. Explain the pathophysiology changes associated with or resulting from disease or injury.

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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**

 Use interviewing techniques, observation, auscultation, palpation and percussion to perform a systematic head‐to‐toe evaluation of the body systems and document using medical terminology.

**Competencies**

2.2.1. Provide privacy and demonstrate cultural sensitivity.

2.2.2. Contact interpretive services for non‐English speaking and English as a Second Language (ESL)

individuals.

2.2.3. Use age‐appropriate language to systematically review disease processes related to each body

system (e.g., vaccinations, allergies, reactions, history of abuse, history of suicidal ideation,

alcohol use, risk behaviors, stressors, sleep patterns, nutritional patterns, occupation, living

conditions, current medications, over‐the‐counter medications, herbals).

2.2.4. Perform vital signs.

2.2.5. Determine level of consciousness and cognition.

2.2.6. Determine pupil reactivity and accommodation.

2.2.7. Determine site, onset, type, quality and level of pain.

2.2.8. Determine what decreases and increases the pain experience.

*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 |

**Strand 3. Therapeutic Interventions**

Learners will administer or assist with environmental, health promotion, pharmacological, emergency, nutritional, exercise and rehabilitative and dental and surgical interventions and/or procedures to improve the individuals’ outcome and quality of life across the life span within their scope of practice, evaluate outcomes and ensure individual’s rights.

**Outcome 3.1. Environmental Interventions**

Create and maintain a safe, sterile, efficient, age‐appropriate care environment.

**Competencies**

3.1.1. Use standard precaution guidelines, recommended by the Centers for Disease Control and

Prevention, for reducing the risk of transmission of blood‐borne and other pathogens.

3.1.2. Maintain patients’ rights, respect individual’s choices and obtain 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 and elopement to the individual or others (e.g., by using restraints,

alarms, bedrails, hi‐low beds, padding, non‐slip footwear and hand rails).

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

3.1.6. Identify and remove environmental and electrical hazards to decrease the risk of falls, injury,

or ingestion of dangerous materials (e.g., clutter, equipment, throw rugs, spills, plants,

hazardous chemicals).

3.1.7. Demonstrate chemical and electrical safety and their application to the work environment.

3.1.8. Determine the risk of burns resulting from equipment, liquids, chemicals and fire.

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

3.1.10. Clean, store, or dispose of supplies, specimens and laboratory glassware following protocol

and standard precautions.

3.1.11. Determine risk of bleeding and implement precautions.

3.1.12. Implement disaster preparedness response to fire, tornado, emergency evacuation, hazardous

material spill, infant/child abduction, bomb threat, violent person, active shooter, missing

adult and loss of power.

3.1.13. Identify risk factors of exposure to hazardous materials (i.e., chemical, radiologic, microbial)

and provide safety precautions.

3.1.14. Apply principles of asepsis and sterile techniques and determine recommended use of

germicides (e.g., sterilant, disinfectant, antiseptic).

3.1.15. Follow Standard Operational Protocols (SOP's) for exposure and disposal of tissue cultures,

contaminated materials, body fluids and radioisotopes and place sharps in biohazard

containers.

3.1.16. Use proper body mechanics to perform therapeutic interventions.

3.1.17. Identify electrical, thermal and drowning risks in aquatic environments.

3.1.18. Account for all instruments, supplies and equipment.

3.1.19. Control the level of distractions and noise.

3.1.20. Perform the safe operation, packing and cleaning of 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, families and

communities.

**Competencies**

3.2.5. Share information to promote, maintain and restore.

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

medicine.

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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. Recognize and communicate the potential side effects and adverse reactions to medical

interventions and determine the individual’s level of understanding.

3.3.13. Identify causes for altered body 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**

Respond to emergencies and natural disasters by performing emergency interventions and proper documentation.

**Competencies**

3.4.1. Perform cardiopulmonary resuscitation (CPR), first‐aid and automated external defibrillation

(AED).

3.4.2. Control hemorrhage.

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

3.7.2. Summarize the uses and effects of tobacco, caffeine, alcohol, marijuana, cocaine and

methamphetamines on the oral cavity and teeth.

3.7.3. Compare and contrast various specialties in dentistry (e.g., endodontic, periodontal, oral

surgery, orthodontics, prosthodontics).

3.7.4. Identify instruments and supplies used in various dental procedures.

3.7.5. Identify dental emergencies.

3.7.6. Describe dental pain management.

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

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

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

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

3.7.11. Take intraoral and extraoral photographs and radiographs.

3.7.12. Compare and contrast common procedures and equipment used in pediatric and adult

dentistry.

3.7.13. Prepare individuals for treatment.

3.7.14. Prepare dental materials for placement.

3.7.15. Perform basic dental chair‐side assisting, including evacuation and transfer techniques.

3.7.16. Demonstrate in‐office dental laboratory procedures.

3.7.17. Chart conditions of the oral cavity.

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

**Strand 4. Assistive Care**

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

**Outcome 4.1. Scope of Practice**

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

**Competencies**

4.1.2. Inform the supervisor of any changes in the individual’s condition.

4.1.3. Provide input to and work within an age‐appropriate plan of care developed by the

interdisciplinary team for each individual.

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

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

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

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

**Competencies**

4.2.1. Describe 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. Describe 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).

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

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

**Competencies**

4.3.1. Describe the chain of infection (e.g., host, vectors, portal of entry).

4.3.2. Describe mechanisms for the spread of infection, including airborne, vector‐borne, common

vehicle, droplet and contact.

4.3.3. Describe methods of controlling or eliminating microorganisms and the importance of

practices that hinder the spread of infection (e.g., hand washing, disinfecting care areas).

4.3.4. Use 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. Demonstrate precaution guidelines.

4.3.7. Maintain isolation precautions.

4.3.8. Identify signs and symptoms of infection (e.g., fever, confusion, areas of redness, swelling,

pain).

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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 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.

5.1.2. Prepare and interpret labels for chemicals, supplies and equipment.

5.1.3. Use chemical references to identify hazards associated with handling and storing chemical

materials.

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

5.1.5. Ensure clean room integrity using Standard Operating Procedures (SOPs).

5.1.6. Sample, monitor and record the environmental conditions of the facility (e.g. air quality,

temperature, microbial contaminations).

5.1.7. Adjust, calibrate, maintain and perform systems diagnostics on laboratory equipment.

5.1.8. Maintain equipment logs and determine when to perform, implement, or schedule preventive

maintenance and/or systems updates.

5.1.9. Verify expiration dates and lot numbers.

5.1.10. Implement a chemical inventory system that includes all pertinent information regarding

stability, hazards and sensitivity.

5.1.11. Maintain an inventory system for manufactured products, including a monitoring system for

the pilfering of materials.

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

5.1.13. Monitor and maintain animal behavior, welfare and husbandry.

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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 5.3. 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.

**Competencies**

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

organisms.

5.3.3. Explain bacterial metabolism, reproduction, cell structures and their functions.

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

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

**Outcome 5.7. Bioreactor Technologies**

Describe and perform bioreactor procedures (e.g., fermentation, sterilization).

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

**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, blood alcohol, 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, 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.

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

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

6.1.4. Describe the principles of structure, design and use of health information (e.g., individual,

comparative, reports, trended data).

6.1.5. Use health record data collection tools (e.g., input screens, document templates).

6.1.6. Recognize standard data definitions, vocabularies, terminologies, nomenclatures (e.g.,

SNOMED‐CT), classifications (e.g., ICD9CM, ICD10, CPT) and relevant healthcare data sets (e.g.,

OASIS, HEDIS, UHDDS) as used in the organization’s health information systems.

6.1.7. Differentiate between the types and content of patient health records and the data collected

(e.g., paper‐based, electronic health records, personal health records).

6.1.8. Describe health record documentation requirements of external agencies and organizations

(e.g., those specified by accrediting bodies, regulatory bodies, professional review

organizations, licensure, reimbursement, discipline‐specific “good practice”).

6.1.9. Describe typical internal organizational health record documentation requirements, policies

and procedures.

6.1.10. Explain how to apply policies and procedures to ensure organizational compliance with

regulations and standards, including Medicare and Medicaid.

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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 across the organization and between organizations.

**Competencies**

6.2.1. Identify components of the court systems and distinguish between public and private law, civil

and criminal law and tort, contract actions and the trial process.

6.2.3. Explain and 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 data.

6.2.5. Distinguish between confidential and non‐confidential information within the healthcare

system and document, categorize and prioritize requests for personal health information

according to internal/external privacy and confidentiality guidelines (e.g. Health Insurance

Portability and Accountability Act [HIPAA]).

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

procedures.

6.2.7. Maintain data integrity and validity within an information system.

6.2.8. Describe the possible consequences of inappropriate use of health data in terms of

disciplinary action.

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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 Personal Health Record (PHRs) to ensure accurate information, retrieve information and maintain data.

**Competencies**

6.3.1. Create and update documents within the EHR and PHR systems.

6.3.2. Locate and retrieve information in the EHR and other electronic sources for a variety of

purposes.

6.3.3. Populate and use health data content.

6.3.4. Apply documentation management principals to ensure data quality, legal compliance and

integrity.

6.3.5. Apply methods to ensure authenticity, timeliness and completeness of health data entries in

electronic information systems.

6.3.6. Document profession‐specific information in an EHR.

6.3.7. Identify methods to correct errors entered in an EHR.

6.3.8. Access reference material available through an EHR.

6.3.9. Identify the source of information entered in an EHR.

6.3.10. Resolve minor technology problems associated with using an EHR.

6.3.11. Follow access protocols for entry to an EHR.

6.3.12. Manage documents within the EHR and PHR, using filing and patient identification

methodologies.

6.3.13. Complete health information management (HIM) functions (e.g., scanning, transcription,

releasing information) in an electronic environment.

6.3.14. Perform procedural and diagnostic coding according to managed care policies and procedures

(including third‐party guidelines).

6.3.15. Describe the common insurance claim procedures and apply guidelines of documentation and

processing to ensure federal, state and third‐party insurance reimbursements are included

and complete insurance claim forms.

6.3.16. Select accurate medical terminology to record and code charges and reimbursement aligned

with regulatory and legal purposes.