

Health Science: Certified Nursing Assistant





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The purpose of this document is to communicate the required Career and Technical Education (CTE) academic standards for the Health Science: Certified Nursing Assistant Program of Study. The academic standards in this document are theoretical and performance-based. The standards contain content from Colorado, Maryland, Tennessee, and Texas and were validated by D.C. business and industry partners. All content is used with permission.

In addition to academic standards, OSSE has incorporated into this document Labor Market Information (LMI) definitions and explanations for the Program of Study; program aligned Industry Recognized Credentials; and Work-Based Learning resources and requirements by course level.

This document is intended for use by educational administrators and practitioners. A similar document is available for each state-approved CTE Program of Study.



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Health Science: Certified Nursing Assistant		
Course Level	Course Information	Description
Level I	Principles of Health Science OSSEID: 14251G1.0015 Grades: 9-12 Prerequisite: None Credit: 1	The Principles of Health Science course is designed to provide an overview of the therapeutic, diagnostic, health informatics, support services, and biotechnology research and development systems of the health care industry.
Level II	Medical Terminology OSSEID: 14154G1.0025 Grades: 10-12 Prerequisite: Principles of Health Science Credit: 1	The Medical Terminology course is designed to introduce students to the structure of medical terms, including prefixes, suffixes, word roots, singular and plural forms, and medical abbreviations. The course allows students to achieve comprehension of medical vocabulary appropriate to medical procedures, human anatomy and physiology, and pathophysiology.
Level III	Health Science Theory and Practice OSSEID: 14251G1.0035 Grades: 11-12 Prerequisite: Medical Terminology Credit: 1	The Health Science Theory and Practice course is designed to provide for the development of advanced knowledge and skills related to a wide variety of health careers. Students will employ hands-on experiences for continued knowledge and skill development.
	Anatomy and Physiology OSSEID: 14901G1.0045 Grades: 11-12 Prerequisite: Medical Terminology Credit: 1	The Anatomy and Physiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Anatomy and Physiology will study a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis.
Level IV	Practicum in Health Science: Certified Nursing Assistant Clinical OSSEID: 14901G1.0045 Grades: 12 Prerequisite: Health Science Theory and Practice and Anatomy and Physiology Credit: 1	The Practicum in Health Science: Certified Nursing Assistant is designed to give students practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations in order to prepare students to care for residents in long-term care facilities.

Industry Certifications

Certified Nurse Aide/Assistant (CNA)



Work-Based Learning Examples and Resources

Level I Course	Level II Course	Level III Course	Level IV Course
Career Exploration Industry Visits Guest Speakers Participate in a CTSO	Career Awareness <i>All of Level I, plus:</i> Postsecondary Visits Program- Specific Site Tours Mock Interviews	Career Preparation <i>All of Level I and II, plus:</i> Job Shadow Paid/Unpaid Internships	Career Preparation Paid/Unpaid Internships Apprenticeships

Several resources are available to help instructors meet the Level I and Level II WBL requirements, including:

Career Coach DC (<http://careercoachdc.emsicc.com>). Online site designed to help students find and connect to a career pathway by providing the most current local data on wages, employment, job postings, and associated education and training. The resource includes a Career Assessment for students.

Nepris (<https://dc.nepris.com/>). Connects educators and learners with a network of industry professionals virtually, bringing real-world relevance and career exposure to all students. Nepris also provides a skills-based volunteering platform for business and industry professionals to extend their educational outreach.

Virtual Job Shadow (<https://virtualjobshadow.com>). Provides interactive tools which empower students to discover, plan, and pursue their dreams. Rich video library presents a “day in the life of” view for thousands of occupations.



Labor Market Information Definitions and Data

Career and Technical Education programs of study in the District of Columbia must meet at least one of the High Wage, High Skill, and In-Demand definitions below to be considered appropriate for our students and the regional labor market. These definitions were created in collaboration with Career and Technical Education leaders from District of Columbia LEA's, the University of the District of Columbia Community College, and national guidance from Research Triangle International (RTI) and Education Northwest. Additionally, previous work was consulted from researchers at MIT's Labor Wage Index Project and the DC CTE Task Force's 2012 Strategic Plan for the District of Columbia.

Indicator	Definition	Data for the Health Science: Certified Nursing Assistant Program of Study (source: EMSI, August 2022)
<p>High Wage</p>	<p>Those occupations that have a 25th percentile wage equal to or greater than the most recent MIT Living Wage Index for one adult in the District of Columbia, and/or leads to a position that pays at least the median hourly or annual wage for the Washington, DC, metropolitan statistical area.</p> <p><i>Note: A 25th percentile hourly wage of \$23.13 or greater is required to meet this definition.</i></p>	<p>Standard Occupational Code (SOC): 31-1014.00 Nursing Assistant 29-1141.00 Registered Nurses</p> <p>Hourly Wages 25th Percentile: \$24.38 50th Percentile: \$28.65 75th Percentile: \$38.28</p>
<p>High Skill</p>	<p>Those occupations located within the Washington, DC, metropolitan statistical area with the following education or training requirements: completion of an apprenticeship program; completion of an industry-recognized certification or credential; associate's degree, or higher.</p>	<p>Typical Entry-Level Education: Postsecondary Nondegree Award Bachelor's Degree</p>
<p>In-Demand</p>	<p>Those occupations in the Washington, DC, metropolitan statistical area having more than the median number of total (growth plus replacement) annual openings over a five-year period.</p> <p><i>Note: An occupation is required to have an annual growth plus replacement rate of 105 openings, or greater, between 2021-2026 to meet this definition.</i></p>	<p>Annual Openings: 5,491</p>



Model Six-Year Plan: Health Science: Certified Nursing Assistant Program of Study

College: University of the District of Columbia Community College

Program/CIP:

Plan:

Entity: Office of the State Superintendent of Education

Career Cluster: Health Science

Program of Study: Health Science: Certified Nursing Assistant

Subject	High School				College			
	9 th Grade	10 th Grade	11 th Grade	12 th Grade	Semester I	Semester II	Semester III	Semester IV
English (4)	English I	English II	English III	English IV				
Math (4)	Algebra I	Geometry	Algebra II	Math				
Science (4)	Biology	Lab Science	Anatomy and Physiology	Science				
Social Studies (4)	World History and Geography I: Middle Ages	World History and Geography II: Modern World	U.S. History	U.S. Government (.5) and D.C. History (.5)				
Health (.5) and Physical Ed (1)	Health (.5) Physical Ed (.5)	Physical Ed (.5)						
World Languages (2)			World Language I	World Language II				
Art (.5)		Art (.5)						
Music (.5)		Music (.5)						
Elective / Major Courses	Principles of Health Science	Medical Terminology	Health Science Theory and Practice	Practicum in Health Science: Certified Nursing Assistant Clinical				
Total possible college credits completed in high school: XX					Credit hours required to complete the AAS program: XX			



Course Standards

Principles of Health Science

1. **General requirements.** This course is recommended for students in Grades 9 through 12. Students shall be awarded one credit for successful completion of this course.
2. **Introduction.**
 - A. Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
 - B. The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostics services, health informatics, support services, and biotechnology research and development.
 - C. The Principles of Health Science course is designed to provide an overview of the therapeutic, diagnostic, health informatics, support services, and biotechnology research and development systems of the health care industry.
 - D. Students will participate in at least two Career Exploration Work-Based Learning experiences in this course, which might include guest speakers and work-place tours relevant to the program of study.
 - E. Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.
3. **Knowledge and skills.**
 - A. **The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:**
 1. express ideas in a clear, concise, and effective manner;
 2. exhibit the ability to cooperate, contribute, and collaborate as a member of a team; and
 3. identify employer expectations such as punctuality, attendance, time management, communication, organizational skills, and productive work habits.
 - B. **The student applies mathematics, science, English language arts, and social studies in health science.**
 1. **The student is expected to:**
 2. convert units between systems of measurement;
 3. apply data from tables, charts, and graphs to provide solutions to health-related problems;
 4. interpret technical material related to the health science industry;
 5. organize, compile, and write ideas into reports and summaries;
 6. plan and prepare effective oral presentations;
 7. formulate responses using precise language to communicate ideas;
 8. describe biological and chemical processes that maintain homeostasis;
 9. identify and analyze principles of body mechanics and movement such as forces and the effects of movement, torque, tension, and elasticity on the human body;



10. identify human needs according to Maslow's Hierarchy of Human Needs;
 11. describe the stages of development related to the life span;
 12. identify the concepts of health and wellness throughout the life span;
 13. analyze and evaluate communication skills for maintaining healthy relationships throughout the life span;
 14. research the historical significance of health care;
 15. describe the impact of health services on the economy;
 16. analyze the impact of local, state, and national government on the health science industry;
 17. identify diverse and cultural influences that have impacted contemporary aspects of health care delivery;
and
 18. research and compare practices used by various cultures and societies to solve problems related to health.
- C. **The student uses verbal and nonverbal communication skills. The student is expected to:**
1. identify components of effective and non-effective communication;
 2. demonstrate effective communication skills for responding to the needs of individuals in a diverse society;
 3. evaluate the effectiveness of conflict-resolution techniques in various situations; and
 4. accurately interpret, transcribe, and communicate medical vocabulary using appropriate technology.
- D. **The student implements the leadership skills necessary to function in a democratic society. The student is expected to:**
1. identify traits of a leader;
 2. demonstrate leadership skills, characteristics, and responsibilities of leaders such as goal-setting and team building; and
 3. demonstrate the ability to effectively conduct and participate in meetings.
- E. **The student assesses career options and the preparation necessary for employment in the health science industry. The student is expected to:**
1. locate, evaluate, and interpret career options and employment information; and
 2. recognize the impact of career decisions, including the causes and effects of changing employment situations.
- F. **The student identifies academic preparation and skills necessary for employment as defined by the health science industry. The student is expected to identify academic requirements for professional advancement such as certification, licensure, registration, continuing education, and advanced degrees.**
- G. **The student identifies the career pathways related to health science. The student is expected to:**
1. compare health science careers within the diagnostic, therapeutic, health informatics, support services, and biotechnology research and development systems; and
 2. identify the collaborative role of team members between systems to deliver quality health care.
- H. **The student examines the role of the multidisciplinary team in providing health care.**
1. **The student is expected to:**
 2. Explain the concept of teaming to provide quality health care; and
 3. examine the role of professional organizations in the preparation and governance of credentialing and certification.



- I. **The student interprets ethical behavior standards and legal responsibilities. The student is expected to:**
 - 1. compare published professional codes of ethics and scope of practice;
 - 2. explain principles of ethical behavior and confidentiality, including the consequences of breach of confidentiality;
 - 3. discuss ethical issues related to health care, including implications of technological advances;
 - 4. examine issues related to malpractice, negligence, and liability; and
 - 5. research laws governing the health science industry.

- J. **The student recognizes the rights and choices of the individual. The student is expected to:**
 - 1. identify situations related to autonomy;
 - 2. identify wellness strategies for the prevention of disease;
 - 3. evaluate positive and negative effects of relationships on physical and emotional health such as peers, family, and friends in promoting a healthy community;
 - 4. review documentation related to rights and choices; and
 - 5. demonstrate an understanding of diversity and cultural practices influencing contemporary aspects of health care.

- K. **The student recognizes the importance of maintaining a safe environment and eliminating hazardous situations. The student is expected to:**
 - 1. identify governing regulatory agencies such as the World Health Organization, Centers for Disease Control and Prevention, Occupational Safety and Health Administration, U.S. Food and Drug Administration, Joint Commission, and National Institute of Health;
 - 2. identify industry safety standards such as standard precautions, fire prevention and safety practices, and appropriate actions to emergency situations; and
 - 3. relate safety practices in the health science industry.

- L. **The student identifies the technology used in the diagnostic, therapeutic, health informatics, support services, and biotechnology research and development systems. The student is expected to:**
 - 1. research and identify technological equipment used in the diagnostic, therapeutic, health informatics, support services, and biotechnology research and development systems;
 - 2. identify potential malfunctions of technological equipment; and
 - 3. recognize and explain the process for reporting equipment or technology malfunctions.

- M. **The student develops technology skills. The student is expected to:**
 - 1. use technology as a tool to research, organize, evaluate, and communicate information.
 - 2. use digital technologies (computers, PDAs, media players, GPSs, etc.); communication/networking tools, and social networks appropriately to access, manage; integrate, evaluate, and create information to successfully function in a knowledge economy;
 - 3. demonstrate using current and new technologies specific to the program of study, course; and/or industry; and
 - 4. apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies.



Medical Terminology

1. **General requirements.** This course is recommended for students in Grades 10-12. Students shall be awarded one credit for successful completion of this course.
2. **Introduction.**
 - A. Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
 - B. The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostics services, health informatics, support services, and biotechnology research and development.
 - C. The Medical Terminology course is designed to introduce students to the structure of medical terms, including prefixes, suffixes, word roots, singular and plural forms, and medical abbreviations. The course allows students to achieve comprehension of medical vocabulary appropriate to medical procedures, human anatomy and physiology, and pathophysiology.
 - D. Students will participate in at least two Career Awareness Work-Based Learning experiences in this course, which might include informational interviews or job shadowing relevant to the program of study.
 - E. Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.
3. **Knowledge and skills.**
 - A. **The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:**
 1. express ideas in a clear, concise, and effective manner; and
 2. exhibit the ability to cooperate, contribute, and collaborate as a member of a team.
 - B. **The student recognizes the terminology related to the health science industry. The student is expected to:**
 1. identify abbreviations, acronyms, and symbols related to the health science industry;
 2. identify the basic structure of medical words;
 3. practice word-building skills;
 4. research the origins of eponyms;
 5. recall directional terms and anatomical planes related to body structure;
 6. define and accurately spell occupationally specific terms such as those relating to the body systems,
 7. surgical and diagnostic procedures, diseases, and treatment; and
 8. use prior knowledge and experiences to understand the meaning of terms as they relate to the health
 9. science industry.



- C. **The student demonstrates communication skills using the terminology applicable to the health science industry. The student is expected to:**
1. demonstrate appropriate verbal and written strategies such as correct pronunciation of medical terms
 2. and spelling in a variety of health science scenarios;
 3. employ increasingly precise language to communicate; and
 4. translate technical material related to the health science industry.
- D. **The student examines available resources. The student is expected to:**
1. examine medical and dental dictionaries and multimedia resources;
 2. integrate resources to interpret technical materials; and
 3. investigate electronic media with appropriate supervision.
- E. **The student interprets medical abbreviations. The student is expected to:**
1. distinguish medical abbreviations used throughout the health science industry; and
 2. translate medical abbreviations in simulated technical material such as physician progress notes,
 3. radiological reports, and laboratory reports.
- F. **The student appropriately translates health science industry terms. The student is expected to:**
1. interpret, transcribe, and communicate vocabulary related to the health science industry;
 2. translate medical terms to conversational language to facilitate communication;
 3. distinguish medical terminology associated with medical specialists such as geneticists, pathologists, and
 4. oncologists;
 5. summarize observations using medical terminology; and
 6. interpret contents of medical scenarios correctly.
- G. **The student develops technology skills. The student is expected to:**
1. Use technology as a tool to research, organize, evaluate, and communicate information.
 2. Use digital technologies (computers, PDAs, media players, GPSs, etc.); communication/networking tools,
 3. and social networks appropriately to access, manage; integrate, evaluate, and create information to
 4. successfully function in a knowledge economy;
 5. Demonstrate using current and new technologies specific to the program of study, course; and/or
 6. industry; and
 7. Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies.



Health Science Theory and Practice

1. **General requirements.** This course is recommended for students in Grades 11-12. Prerequisite: Medical Terminology. Students shall be awarded one credit for successful completion of this course.
2. **Introduction.**
 - A. Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
 - B. The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.
 - C. The Health Science Theory and Practice course is designed to provide for the development of advanced knowledge and skills related to a wide variety of health careers. Students will employ hands-on experiences for continued knowledge and skill development.
 - D. Students will participate in a Career Preparation Work-Based Learning experience in this course, which might include paid or unpaid internship experiences relevant to the program of study.
 - E. Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.
3. **Knowledge and skills.**
 - A. **The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:**
 1. express ideas in a clear, concise, and effective manner; and
 2. exhibit the ability to cooperate, contribute, and collaborate as a member of a team.
 - B. **The student applies mathematics, science, English language arts, and social studies in health science. The student is expected to:**
 1. solve mathematical calculations appropriate to situations in a health-related environment;
 2. communicate using medical terminology;
 3. express ideas in writing and develop skills in documentation;
 4. interpret complex technical material related to the health science industry;
 5. summarize biological and chemical processes that maintain homeostasis;
 6. explain the changes in structure and function due to trauma and disease; and
 7. research the global impact of disease prevention and cost containment.
 - C. **The student displays verbal and non-verbal communication skills. The student is expected to:**
 1. demonstrate therapeutic communication appropriate to the situation;
 2. execute verbal and nonverbal skills when communicating with persons with sensory loss and language barriers in a simulated setting; and
 3. use electronic communication devices with appropriate supervision in the classroom setting such as



4. facsimile, scanner, electronic mail, and telephone.
- D. **The student analyzes and evaluates communication skills for maintaining healthy relationships throughout the life span. The student is expected to:**
1. evaluate how healthy relationships influence career goals;
 2. demonstrate communication skills in building and maintaining healthy relationships;
 3. demonstrate strategies for communicating needs, wants, and emotions; and
 4. evaluate the effectiveness of conflict resolution techniques in various simulated situations.
- E. **The student relates appropriate information to the proper authority in a simulated classroom setting. The student is expected to:**
1. identify and retrieve reportable information; and
 2. report simulated information according to facility policy.
- F. **The student identifies documents integrated into the permanent record of the health informatics system. The student is expected to:**
1. research document formats; and
 2. compile and record data according to industry-based standards.
- G. **The student describes academic requirements necessary for employment in the health science industry. The student is expected to:**
1. research specific health science careers; and
 2. examine employment procedures for a specific health science career.
- H. **The student identifies problems and participates in the decision-making process. The student is expected to:**
1. analyze systematic procedures for problem solving;
 2. evaluate the impact of decisions; and
 3. suggest modifications based on decision outcomes.
- I. **The student implements the knowledge and skills of a health science professional in the classroom setting. The student is expected to:**
1. comply with specific industry standards related to safety and substance abuse;
 2. model industry expectations of professional conduct such as attendance, punctuality, personal appearance, hygiene, and time management;
 3. articulate comprehension of assignment;
 4. employ medical vocabulary specific to the health care setting;
 5. perform admission, discharge, and transfer functions in a simulated setting;
 6. demonstrate skills related to activities of daily living in rehabilitative care such as range of motion, positioning, and ambulation according to the health science industry standards, regulatory agency standards, and professional guidelines;
 7. role play techniques used in stressful situations such as trauma and chronic and terminal illness;
 8. demonstrate first aid, vital signs, cardiopulmonary resuscitation, and automated external defibrillator
 9. skills in a laboratory setting; and
 10. perform skills specific to a health science professional such as medical assistant, dental assistant,



13. emergency medical technician-basic, phlebotomy technician, and pharmacy technician.

- J. **The student evaluates ethical behavioral standards and legal responsibilities. The student is expected to:**
1. research and describe the role of professional associations and regulatory agencies;
 2. examine legal and ethical behavior standards such as Patient Bill of Rights, Advanced Directives, and the
 3. Health Insurance Portability and Accountability Act; and
 4. investigate the legal and ethical ramifications of unacceptable behavior.
- K. **The student exhibits the leadership skills necessary to function in a democratic society. The student is expected to:**
1. identify leadership skills of health science professionals;
 2. participate in group dynamics; and
 3. integrate consensus-building techniques.
- L. **The student maintains a safe environment. The student is expected to:**
1. conform to governmental regulations and guidelines from entities such as the World Health Organization, Centers for Disease Control and Prevention, Occupational Safety and Health Administration, U.S. Food and Drug Administration, Joint Commission, and National Institute of Health;
 2. explain protocol related to hazardous materials and situations;
 3. observe and report unsafe conditions; and
 4. support recycling and waste management for cost containment and environmental protection.
- M. **The student assesses wellness strategies for the prevention of disease. The student is expected to:**
1. research wellness strategies for the prevention of disease;
 2. evaluate positive and negative effects of relationships on physical and emotional health;
 3. explain the benefits of positive relationships among community health professionals in promoting a
 4. healthy community;
 5. research and analyze the effects of access to quality health care; and
 6. research alternative health practices and therapies.
- N. **The student develops technology skills. The student is expected to:**
1. Use technology as a tool to research, organize, evaluate, and communicate information;
 2. Use digital technologies (computers, PDAs, media players, GPSs, etc.); communication/networking tools,
 3. and social networks appropriately to access, manage; integrate, evaluate, and create information to
 4. successfully function in a knowledge economy;
 5. Demonstrate using current and new technologies specific to the program of study, course; and/or
 6. industry; and
 7. apply a fundamental understanding of the ethical/legal issues surrounding the access and use of
 8. information technologies.



Anatomy and Physiology

1. **General requirements.** This course is recommended for students in Grades 11-12. Prerequisite: Medical Terminology. Students shall be awarded one credit for successful completion of this course.
2. **Introduction.**
 - A. Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
 - B. The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.
 - C. The Anatomy and Physiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Anatomy and Physiology will study a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis.
 - D. Students will participate in a Career Preparation Work-Based Learning experience in this course, which might include paid or unpaid internship experiences relevant to the program of study.
 - E. Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.
3. **Knowledge and skills.**
 - A. **The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:**
 1. demonstrate verbal and non-verbal communication in a clear, concise, and effective manner; and
 2. exhibit the ability to cooperate, contribute, and collaborate as a member of a team.
 - B. **The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. These investigations must involve actively obtaining and analyzing data with physical equipment, but may also involve experimentation in a simulated environment as well as field observations that extend beyond the classroom. The student is expected to:**
 1. demonstrate safe practices during laboratory and field investigations; and
 2. demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials.
 - C. **The student uses scientific methods and equipment during laboratory and field investigations.**
 1. **The student is expected to:**
 2. know the definition of science and understand that it has limitations, as specified in subsection (b)(4) of this section;



3. know that hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power that have been tested over a wide variety of conditions are incorporated into theories;
 4. know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science are created and new technologies emerge;
 5. distinguish between scientific hypotheses and scientific theories;
 6. plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology;
 7. collect and organize qualitative and quantitative data and make measurements with accuracy and
 8. precision using tools such as calculators, spreadsheet software, data-collecting probes, computers, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, electronic balances, gel electrophoresis apparatuses, micropipettes, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, Petri dishes, lab incubators, dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures;
 9. analyze, evaluate, make inferences, and predict trends from data; and
 10. communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.
- D. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:**
1. in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking;
 2. communicate and apply scientific information extracted from various sources such as accredited scientific journals, institutions of higher learning, current events, news reports, published journal articles, and marketing materials;
 3. draw inferences based on data related to promotional materials for products and services;
 4. evaluate the impact of scientific research on society and the environment;
 5. evaluate models according to their limitations in representing biological objects or events; and
 6. research and describe the history of science and contributions of scientists.
- E. The student evaluates the energy needs of the human body and the processes through which these needs are fulfilled. The student is expected to:**
1. analyze the chemical reactions that provide energy for the body;
 2. evaluate the modes, including the structure and function of the digestive system, by which energy is processed and stored within the body;
 3. analyze the effects of energy deficiencies in malabsorption disorders as they relate to body systems such as Crohn's disease and cystic fibrosis; and
 4. analyze the effects of energy excess in disorders as they relate to body systems such as cardiovascular, endocrine, muscular, skeletal, and pulmonary.



- F. **The student differentiates the responses of the human body to internal and external forces.**
1. **The student is expected to:**
 2. explain the coordination of muscles, bones, and joints that allows movement of the body;
 3. investigate and report the uses of various diagnostic and therapeutic technologies;
 4. interpret normal and abnormal contractility conditions such as in edema, glaucoma, aneurysms, and hemorrhage;
 5. analyze and describe the effects of pressure, movement, torque, tension, and elasticity on the human body; and
 6. perform an investigation to determine causes and effects of force variance and communicate findings.
- G. **The student examines the body processes that maintain homeostasis. The student is expected to:**
1. investigate and describe the integration of the chemical and physical processes, including equilibrium, temperature, pH balance, chemical reactions, passive transport, active transport, and biofeedback, that contribute to homeostasis; and
 2. determine the consequences of the failure to maintain homeostasis.
- H. **The student examines the electrical conduction processes and interactions. The student is expected to:**
1. illustrate conduction systems such as nerve transmission or muscle stimulation;
 2. investigate the therapeutic uses and effects of external sources of electricity on the body system; and
 3. evaluate the application of advanced technologies such as electroencephalogram, electrocardiogram,
 4. bionics, transcutaneous electrical nerve stimulation, and cardioversion.
- I. **The student explores the body's transport systems. The student is expected to:**
1. analyze the physical, chemical, and biological properties of transport systems, including circulatory, respiratory, and excretory;
 2. determine the factors that alter the normal functions of transport systems; and
 3. contrast the interactions among the transport systems.
- J. **The student investigates environmental factors that affect the human body. The student is expected to:**
1. identify the effects of environmental factors such as climate, pollution, radioactivity, chemicals, electromagnetic fields, pathogens, carcinogens, and drugs on body systems; and
 2. explore measures to minimize harmful environmental factors on body systems.
- K. **The student investigates the structure and function of the human body. The student is expected to:**
1. analyze the relationships between the anatomical structures and physiological functions of systems, including the integumentary, nervous, skeletal, muscular, cardiovascular, respiratory, digestive, urinary, immune, endocrine, and reproductive systems;
 2. evaluate the cause and effect of disease, trauma, and congenital defects on the structure and function of cells, tissues, organs, and systems;
 3. research technological advances and limitations in the treatment of system disorders; and
 4. examine characteristics of the aging process on body systems.



- L. **The student describes the process of reproduction and growth and development. The student is expected to:**
1. explain embryological development of cells, tissues, organs, and systems;
 2. identify the functions of the male and female reproductive systems; and
 3. summarize the human growth and development cycle.
- M. **The student recognizes emerging technological advances in science. The student is expected to:**
1. recognize advances in stem cell research such as cord blood use; and
 2. recognize advances in bioengineering and transplant technology.
- N. **The student develops technology skills. The student is expected to:**
1. use technology as a tool to research, organize, evaluate, and communicate information.
 2. use digital technologies (computers, pdas, media players, gps, etc.); communication/networking tools, and social networks appropriately to access, manage; integrate, evaluate, and create information to successfully function in a knowledge economy;
 3. demonstrate using current and new technologies specific to the program of study, course; and/or industry; and
 4. apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies.



Practicum in Health Science: Certified Nursing Assistant Clinical

1. **General requirements.** This course is recommended for students in Grade 12. The practicum course is a paid or unpaid capstone experience for students participating in a coherent sequence of career and technical education courses in the Health Science Career Cluster. Prerequisites: Health Science Theory and Anatomy and Physiology. Students shall be awarded one credit for successful completion of this course.
2. **Introduction.**
 - A. Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
 - B. The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.
 - C. The Practicum in Health Science: Certified Nursing Assistant is designed to give students practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations in order to prepare students to care for residents in long-term care facilities. **Classroom training must occur in a Board approved school or continuing education course and shall consist of the following 65 classroom theory hours:**
 1. Role of the nurse assistant (3 hours),
 2. Legal and ethical duties (3 hours),
 3. Care sensitive to culture, religion, national origin, gender identify, and sexual orientation (4 hours),
 4. Communication (3 hours),
 5. Basic safety skills (3 hours),
 6. Infection prevention and control (4 hours),
 7. Understanding basic human functioning and needs (8 hours),
 8. Promoting the resident's independence with personal care skills (5 hours),
 9. Promoting the resident's independence with assistance with elimination (4 hours),
 10. Promoting the resident's independence with basic restorative skills (4 hours),
 11. Delegated nursing skills: Recognizing, reporting, and documenting changes in behavior (3 hours),
 12. Taking and documenting vital signs (4 hours),
 13. Measuring and documenting resident's height and weight (1 hour),
 14. Applying clean bandages (2 hours),
 15. Assisting with admitting, transferring, and discharging (2 hours),
 16. Giving assistance in resolving grievances and disputes (1 hour),
 17. Caring for clients with special needs (3 hours),
 18. Working with agitated or combative residents, including techniques useful in prevention of abuse (3 hours),
 19. Restraints and limitations on the use of restraints (1 hour),
 20. End of life care (2 hours),
 21. Preventing fatigue and burn-out (1 hour), and
 22. Reporting incidents (1 hour).



- D. **Practical training must occur in a Board approved laboratory nursing setting. Students must complete 20 practical hours in the following areas:**
1. Communication (1 hours),
 2. Infection prevention and control (1 hours),
 3. Promoting the resident’s independence with personal care skills (4 hours),
 4. Promoting the resident’s independence with assistance with elimination (3 hours),
 5. Promoting the resident’s independence with basic restorative skills (3 hours),
 6. Taking and documenting vital signs (3 hours),
 7. Measuring and documenting resident’s height and weight (1 hour),
 8. Applying clean bandages ,(1 hours),
 9. Assisting with admitting, transferring, and discharging (1 hours)
 10. Restraints and limitations on the use of restraints (1 hour), and
 11. End of self-care (1 hours).
- E. **Practical training must occur in a Board approved clinical nursing setting. Students must complete 40 practical hours in the following areas:**
1. Critical behaviors,
 2. Role,
 3. Ethical and legal,
 4. Sensitive care – cultural, gender ID, religion, and sexual orientation,
 5. Communication,
 6. General safety,
 7. Promoting the resident’s independence - personal care skills,
 8. Promoting the resident’s independence - basic restorative skills,
 9. Delegated nursing skills,
 10. Working with residents across the lifespan and/or with special needs,
 11. Nutritional needs of the resident,
 12. Maintenance of clean and healthy environment,
 13. Care of medical equipment in the facility, and
 14. Special procedures.
- F. Students will participate in a Career Preparation Work-Based Learning experience in this course, which includes paid or unpaid internship, pre-apprenticeship, or apprenticeship experiences relevant to the program of study.
- G. Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.
3. **Knowledge and skills.**
- A. **The student demonstrates professional standards/employability skills as required by the role of nurse assistant.**
1. The student shall receive training in the following area(s):
 - a. Tasks and responsibilities,
 - b. Implementation of a plan of care,
 - c. Receiving assignments,



- d. Preventing fatigue and burn-out, and
- e. Requirements of reporting incidents.

2. The student is expected to:

- a. Discuss the structure of the healthcare system especially long-term care facilities;
- b. Describe the residents and activities in long-term care facilities;
- c. Explain policies and procedures in long-term care;
- d. Discuss the long-term care survey process;
- e. Identify the members of the care team and their roles in long-term care;
- f. Explain the nurse assistant's role in long-term care including receiving delegation and assignments;
- g. Identify professional behavior and characteristics of professionalism;
- h. Describe the nurse assistant role in care planning and the nurse process;
- i. Describe proper personal grooming habits;
- j. Discuss managing time and assignments;
- k. Discuss the purpose of reporting incidents;
- l. Describe the types of events that require reporting;
- m. Demonstrate documentation when reporting events;
- n. Discuss conflict resolution;
- o. Explain ways to manage stress,
- p. Describe the value of the Nurse assistant as a member of the health care team; and
- q. Discuss ways to prevent fatigue and burnout.

B. The student demonstrates knowledge of the legal and ethical duties of a nurse assistant.

1. The student shall receive training in the following area(s):

- a. Resident rights,
- b. Promoting resident right to be free from abuse and mistreatment, and
- c. Professional boundaries.

2. The student is expected to:

- a. Explain the Patient Self-Determination Act (PSDA), advance directives, and the importance of regarding resident rights;
- b. Describe the role of the nurse assistant in regarding residents' rights;
- c. Explain the Omnibus Budget Reconciliation Act (OBRA) and its significance in long-term care;
- d. Explain types of abuse;
- e. Recognize signs and symptoms of abuse and neglect;
- f. Explain the role of the nurse assistant in reporting abuse or neglect;
- g. Define the terms law and ethics and list examples of legal and ethical behavior in providing care;
- h. Discuss examples of ethical behavior for nurse assistants;
- i. Describe the procedure in DC of resolving complaints against a nurse assistant; and
- j. Explain HIPAA and provide examples of ways to protect residents' privacy.



C. The student demonstrates knowledge of care sensitive to culture, religion, national origin, gender identity and sexual orientation.

1. The student is expected to:
 - a. Describe the ways various cultures communicate;
 - b. Identify ways to learn cultural habits of residents or residents;
 - c. Identify ways to accommodate cultural differences;
 - d. Identify common cultures in this area and characteristics of that culture that relate to health care practices;
 - e. Define culturally sensitive care;
 - f. Describe strategies to implement when providing care that is sensitive to resident's culture, religion, national origin, and sexual orientation;
 - g. Describe the etiquette or demeanor of the nurse assistant when caring for persons of diverse backgrounds including ethnic, religious, gender identity, and sexual orientation; and
 - h. Describe the protections afforded LGBT people by the D.C. Human Rights Act, and the possible consequences of violating the Act.

D. The student demonstrates professional communication skills as required by the role of nurse assistant.

1. The student shall receive training in the following area(s):
 - a. Interpersonal skills,
 - b. Reporting, and
 - c. Giving assistance in resolving grievances and disputes, and
 - d. Working with agitated or combative residents, including techniques useful in the prevention of abuse.
2. The student is expected to:
 - a. Define the term communication;
 - b. Demonstrate respect for the resident through communication and language usage;
 - c. Identify the people that will be communicating with the Nurse assistant ;
 - d. Identify barriers to interpersonal communication;
 - e. Demonstrate proper telephone etiquette;
 - f. Describe the Nurse assistant's role in reporting at "change of shift";
 - g. Explain how to give and receive an accurate report of a resident's status;
 - h. Explain how to meet emotional needs of residents and their families;
 - i. Explain defense mechanisms as methods of coping with stress,
 - j. Discuss the role of the nurse assistant in facilitating the resolution of a dispute,
 - k. Discuss communication guidelines for working with residents with anxiety or fear,
 - l. Discuss communication guidelines for working with residents who are angry or combative,
 - m. Describe techniques to prevent abuse of agitated client,
 - n. Identify personal attitudes that can assist when caring for residents who are agitated or combative, and
 - o. Describe interventions when assisting agitated or combative residents with activities of daily living.

E. The student demonstrates basic safety skills as required by the role of the nurse assistant.

1. The student shall receive training in the following:
 - a. NA responses to resident's seizure,
 - b. Fall prevention, and



- c. MSDA and clean-up of blood/body fluids,
- d. Restraints and limitations on use of restraints.

2. The student is expected to:

- a. List common accidents that occur in facilities;
- b. List techniques that will prevent falls;
- c. Describe basic strategies to prevent accidents;
- d. Explain the Material Safety Data Sheet (MSDS);
- e. List safety guidelines for oxygen use;
- f. Obtain CPR – Basic Life Support certification;
- g. Describe appropriate responses to resident having a seizure,
- h. Define restraint as related to resident restriction of movement;
- i. Explain strategies to promote a restraint-free environment;
- j. Demonstrate proper use of Posey vest, wrist and ankle restraints;
- k. Explain the safety and care for a resident in a restraint.

F. The student demonstrates the knowledge and procedures for infection control and prevention as required by the role of the nurse assistant.

1. The student is expected to:

- a. Define infection prevention and discuss types of infections;
- b. Describe the chain of infection;
- c. Describe the spread of infection;
- d. Describe infection prevention practices, including standard precautions;
- e. List equipment used for standard precautions;
- f. Identify when to wash hands;
- g. Demonstrate proper hand washing technique;
- h. Discuss the use of personal protective equipment (PPE) in facilities;
- i. Explain how to handle spills; and
- j. List guidelines for handling equipment and linen.

G. The student demonstrates the knowledge of basic human functioning and needs.

1. The student shall receive training in the following area(s):

- a. Anatomy and physiology of body organs and systems,
- b. The effect of age, illness, disability, and gender on sexuality,
- c. Developmental tasks associated with aging, and
- d. End of life care.

2. The student is expected to:

- a. Identify basic human needs;
- b. Describe normal body functions by systems and organs;
- c. Describe the integumentary system;
- d. Describe the musculoskeletal system;
- e. Describe the nervous system;
- f. Describe the circulatory or cardiovascular system;



- g. Describe the respiratory system;
- h. Describe the urinary system;
- i. Describe the gastrointestinal system;
- j. Describe the endocrine system;
- k. Describe the reproductive system;
- l. Describe the immune and lymphatic systems;
- m. Describe the stages of human development and common disorders for each group;
- n. Discuss normal changes of aging and care guidelines;
- o. Identify behaviors and habits that promote good health;
- p. Explain how a disability may affect sexuality and intimacy;
- q. Identify skills you have already learned that can be applied to clients with disabilities; and
- r. List five goals to work toward when assisting clients w/disabilities.
- s. Discuss how feelings and attitudes about death differ;
- t. Explain how to care for a dying resident with dignity and respect;
- u. Describe common signs of approaching death;
- v. List changes that occur in the body with approaching death; and
- w. Describe the nurse assistant's role in performing care after death.

H. The student demonstrates the knowledge to promote the resident's independence with personal care skills:

- 1. The student shall receive training in the following area(s):
 - a. Bathing,
 - b. Feeding (use of assistive devices),
 - c. Nutrition,
 - d. Hydration,
 - e. Skin integrity and skin care,
 - f. Dressing,
 - g. Grooming,
 - h. Perineal care,
 - i. Indwelling catheter care, and
 - j. Emptying, measuring, replacing ostomy bag.
- 2. The student is expected to:
 - a. Describe techniques to promote resident independence with personal care skills;
 - b. Describe guidelines for assisting with bathing;
 - c. Demonstrate proper procedure for complete bath, partial bath, and shower;
 - d. Describe guidelines for assisting with grooming, including shaving and hair care;
 - e. Demonstrate foot care without nail clippings;
 - f. Demonstrate dressing a resident with an affected side;
 - g. Identify and report changes in skin integrity;
 - h. Demonstrate oral care and denture cleaning;
 - i. Describe factors that influence food preferences;
 - j. Explain special diets;
 - k. Identify ways to promote appetites at mealtime;
 - l. Describe the use of assistive devices in eating;



- m. Demonstrate assistance with eating;
- n. Identify signs and symptoms of swallowing problems;
- o. Describe how to assist the resident with special feeding needs;
- p. Explain how the nurse assistant adapts personal care procedures to meet the needs of clients with feeding tubes and other invasive devices;
- q. Describe care of the male and female perineal area, including indwelling catheter care; and
- r. Demonstrate how to empty, measure, and replace ostomy bag.

I. The student demonstrates the knowledge to promote the resident's independence with assistance in elimination:

- 1. The student shall receive training in the following area(s):
 - a. Toileting,
 - b. Bowel training, and
 - c. Bladder training.
- 2. The student is expected to:
 - a. Describe guidelines for assisting with toileting;
 - b. Demonstrate assistance with use of bedpan, bedside commode, and toilet;
 - c. Discuss guidelines for bladder training; and
 - d. Discuss guidelines for bowel training.

J. The student demonstrates the knowledge to promote the resident's independence with basic restorative skills:

- 1. The student shall receive training in the following area(s):
 - a. Safe transfer,
 - b. Ambulation,
 - c. Range of motion,
 - d. Turning and repositioning in bed and chair,
 - e. Orthotic and prosthetic devices, and
 - f. Change dry dressing.
- 2. The student is expected to:
 - a. Describe strategies to promote independence with mobility and ambulation;
 - b. Describe the principles of body mechanics;
 - c. Discuss body alignment and the need for repositioning;
 - d. Discuss ambulation and describe assistive devices and equipment;
 - e. Explain guidelines for maintaining proper body alignment;
 - f. Demonstrate safe transfer of resident with an affected side (weakness);
 - g. Demonstrate the use of assistive devices when transferring;
 - h. Demonstrate transfer using mechanical lifts;
 - i. Demonstrate assistance with ambulation;
 - j. Demonstrate use of assistive devices (walker, cane, forearm crutches, gait belt) when assisting with ambulation;
 - k. Describe the guidelines and purpose for exercising;



- l. Demonstrate assistance with range of motion exercises as designated by physical therapist;
- m. Describe the application, care and removal of orthotic and prosthetic devices; and
- n. Demonstrate the removal and application of dry dressing.

K. The student demonstrates delegated nursing skills.

1. The student shall receive training in the following area(s):
 - a. Recognizing,
 - b. Reporting,
 - c. Taking vital signs,
 - d. Observing and reporting pain,
 - e. Documenting changes in behavior,
 - f. Measuring and documenting resident's weight and height,
 - g. Applying clean bandages,
 - h. Change dry dressing, and
 - i. Assisting with admitting, transferring, or discharging.

2. The student is expected to:
 - a. Describe normal body functions by systems and organs;
 - b. Recognize abnormal functions;
 - c. Describe and record abnormal body functions or changes;
 - d. Describe and record abnormal behavior;
 - e. Demonstrate ability to document on appropriate forms;
 - f. List important changes to report and document for a client with disabilities;
 - g. Explain purposes for monitoring temperature, pulse and respirations;
 - h. Describe the guidelines for taking oral, tympanic and axillary
 - i. Temperatures;
 - j. Describe the guidelines for taking radial pulses and respirations;
 - k. Demonstrate accurate measuring of oral, tympanic, and axillary temperatures;
 - l. Demonstrate accurate measuring of radial pulse and respiration;
 - m. Demonstrate recording of temperature, pulse and respirations;
 - n. Demonstrate measurement of blood pressure using manual two-step approach and using electronic sphygmomanometer;
 - o. Describe how clients may show pain or feelings of discomfort in facial gestures or in the body;
 - p. Define the role of the nurse assistant in reporting pain;
 - q. Demonstrate accurate process for measuring resident's weight: standing, in a wheelchair, and using mechanical lift;
 - r. Record height and weight in the proper place in resident's record;
 - s. Demonstrate recording of resident's intake and output on facility form;
 - t. Demonstrate application of clean bandage to limb;
 - u. Describe the state of the limb;
 - v. Demonstrate application of dry dressing to designated area;
 - w. Describe the state of the designated area;
 - x. Explain the role of the nurse assistant in the emotional adjustment of a new resident;



- y. Describe the nurse assistant's role in the admission process;
- z. Explain the role of the nurse assistant in an in-house transfer of a resident; and
- aa. Discuss the role of the nurse assistant in the discharge of a resident.

L. The student demonstrates caring for clients with special needs.

1. The student shall receive training in the following area(s):
 - a. Cognitive impairment,
 - b. Sensory deficits or impairment,
 - c. Communication limitations, and
 - d. Altered level of consciousness.
2. The student is expected to:
 - a. Discuss the vulnerability of clients with cognitive, sensory, behavioral or communication impairments;
 - b. Discuss the needs of individuals with developmental disabilities Define cognitive impairment;
 - c. Describe how to care for clients with common mental illnesses: depression, anxiety, schizophrenia, dementia and Alzheimer's;
 - d. List strategies for communicating to clients with Alzheimer's disease; and
 - e. Identify the types of behavioral observations that should be reported.

M. The student applies mathematics, science, English language arts, and social sciences in health science. The student is expected to:

1. interpret data from various sources in formulating conclusions;
2. compile information from a variety of sources to create a technical report;
3. plan, prepare, and deliver a presentation;
4. examine the environmental factors that affect homeostasis;
5. relate anatomical structure to physiological functions; and
6. distinguish atypical anatomy and physiology in the human body systems.

N. The student explores the knowledge and skill levels necessary for advancing in the health science professions. The student is expected to:

1. identify knowledge and skills that are transferable among health science professions; and
2. research career pathways pertaining to the health care industry.

O. The student recognizes the importance of participation in extended learning experiences. The student is expected to:

1. participate in extended learning experiences such as community service, career and technical student organizations, and professional organizations; and
2. create a plan of action targeting the career and technical student organization's community service goal.

P. The student develops technology skills. The student is expected to:

1. Use technology as a tool to research, organize, evaluate, and communicate information.
2. Use digital technologies (computers, PDAs, media players, GPSs, etc.), communication/networking tools, and social networks appropriately to access, manage, integrate, evaluate, and create information to successfully function in a knowledge economy.



3. Demonstrate utilizing current and new technologies specific to the program of study, course, and/or industry.
4. Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies.