

COURSE HCS1050: MUSCULOSKELETAL SYSTEM

Level: Introductory

Prerequisite: HSS1010: Health Services Foundations

Description: Students explore the structure and function of the musculoskeletal system, gain an understanding of conditions of the musculoskeletal system and achieve an appreciation for the benefits of practising a healthy lifestyle as it pertains to the individual, family, peers and community.

Outcomes: The student will:

1. explain the basic anatomy and physiology of the skeletal system

- 1.1 define common terms related to the skeletal system using a list of prefixes, roots and suffixes
- 1.2 name and locate bones in the skeletal system, including the main bones:
 - 1.2.1 in the cranium, including the infant skull and face
 - 1.2.2 in the vertebral column
 - 1.2.3 in the thorax
 - 1.2.4 of the shoulder girdle
 - 1.2.5 of the arms and hands
 - 1.2.6 of the legs, ankles and feet
 - 1.2.7 of the pelvis
- 1.3 differentiate between the appendicular and axial skeletons
- 1.4 state the number of bones in the body in the axial and appendicular skeletons
- 1.5 differentiate between the male and female pelvis
- 1.6 describe, using examples, the functions of the skeletal system to:
 - 1.6.1 serve as a frame for the body
 - 1.6.2 protect organs
 - 1.6.3 serve as a lever for movement
 - 1.6.4 form blood cells
 - 1.6.5 store minerals
- 1.7 categorize bones according to shape; e.g., short, long, irregular, flat
- 1.8 identify the appearance and function of bone markings; e.g., projections, depressions
- 1.9 describe the structure and significance of long bones
- 1.10 differentiate between compact and spongy bone tissue
- 1.11 differentiate between red and yellow bone marrow
- 1.12 describe the process of bone growth and repair (remodelling), including:
 - 1.12.1 identifying bone cells and their function
 - 1.12.2 describing the process of bone growth in long bones

2. explain the basic anatomy and functions of the muscular system

- 2.1 describe how muscles are named by:
 - 2.1.1 location to a nearby bone
 - 2.1.2 location related to body position, insertion and/or origin
 - 2.1.3 size
 - 2.1.4 shape
 - 2.1.5 direction of fibres
 - 2.1.6 number of heads
 - 2.1.7 action

- 2.2 differentiate between smooth muscle, cardiac muscle and skeletal muscle, considering:
 - 2.2.1 location
 - 2.2.2 characteristics of cells
 - 2.2.3 control
 - 2.2.4 action
- 2.3 describe the functions of the muscular system, including:
 - 2.3.1 movement of the skeleton
 - 2.3.2 maintenance of posture
 - 2.3.3 generation of heat
- 2.4 define the terms *origin* and *insertion*
- 2.5 describe the location and function of additional soft tissues and organs related to the major skeletal muscles of the body, including:
 - 2.5.1 tendons
 - 2.5.2 fascia
 - 2.5.3 cartilage
 - 2.5.4 ligaments
 - 2.5.5 skin
- 3. explain the basic anatomy and function of muscles and joint structures**
 - 3.1 categorize joints in the body into the three categories of immovable, partially moveable and freely moveable
 - 3.2 describe the anatomical structure of joints and surrounding structures that affect the function of a joint
 - 3.3 describe the anatomy of synovial joints, comparing those with cartilage pads and those without cartilage pads
 - 3.4 categorize synovial joints into gliding, hinge, pivot condyloid, saddle, and ball and socket joints
 - 3.5 differentiate between stable and unstable joints in the body
 - 3.6 summarize proprioception
 - 3.7 identify three factors that affect the amount and direction of movement in a joint
 - 3.8 explain basic movement patterns, incorporating the concept of antagonist, agonist and synergistic muscle actions involving the major joints
 - 3.9 summarize active, resisted and passive range of motion
- 4. evaluate factors that contribute to the promotion and maintenance of a healthy musculoskeletal system**
 - 4.1 summarize the role of the musculoskeletal system in achieving and maintaining wellness
 - 4.2 summarize the basic effects of aging on the function of the musculoskeletal system
 - 4.3 predict the effect of lifestyle choices on the wellness of the musculoskeletal system, including choices related to cultural beliefs and practices
 - 4.4 recommend preventative lifestyle choices required for musculoskeletal system wellness, including describing the relationship of:
 - 4.4.1 active living to musculoskeletal health
 - 4.4.2 proper nutrition to musculoskeletal health
 - 4.4.3 proper lifting techniques and ergonomics to musculoskeletal health
- 5. explain the basic pathology and treatment of conditions of the musculoskeletal system**
 - 5.1 summarize the signs and symptoms of common conditions of the musculoskeletal system, including conditions caused by:
 - 5.1.1 metabolic and genetic disorders
 - 5.1.2 infections
 - 5.1.3 structural disorders, including spinal, back and joint disorders

- 5.1.4 fractures and injuries
- 5.1.5 spasms, including spasms of smooth and skeletal muscle
- 5.1.6 overuse or underuse, including strains and sprains
- 5.2 describe diagnostic procedures available for these conditions
- 5.3 summarize medical and integrative health treatments available for these conditions
- 5.4 describe the impact of pathologies of the musculoskeletal system on other body systems
- 5.5 summarize the probable social, emotional and economic impact of these conditions on the individual, family, peers and community
- 5.6 summarize community resources available for people living with musculoskeletal system pathologies

6. demonstrate basic competencies

- 6.1 demonstrate fundamental skills to:
 - 6.1.1 communicate
 - 6.1.2 manage information
 - 6.1.3 use numbers
 - 6.1.4 think and solve problems
- 6.2 demonstrate personal management skills to:
 - 6.2.1 demonstrate positive attitudes and behaviours
 - 6.2.2 be responsible
 - 6.2.3 be adaptable
 - 6.2.4 learn continuously
 - 6.2.5 work safely
- 6.3 demonstrate teamwork skills to:
 - 6.3.1 work with others
 - 6.3.2 participate in projects and tasks

7. make personal connections to the cluster content and processes to inform possible pathway choices

- 7.1 complete/update a personal inventory; e.g., interests, values, beliefs, resources, prior learning and experiences
- 7.2 create a connection between a personal inventory and occupational choices

COURSE HCS1060: DIGESTIVE SYSTEM

Level: Introductory

Prerequisite: HSS1010: Health Services Foundations

Description: Students acquire the attitudes, skills and knowledge for achieving and maintaining digestive health, and gain an appreciation for practising a healthy lifestyle as it pertains to the individual, family, peers and community.

Supporting Courses: HSS1020: Nutrition & Wellness
REC2010: Nutrition for Recreation Activities & Sport

Outcomes: The student will:

1. explain the basic anatomy and functions of the digestive system

- 1.1 define common terms related to the digestive system using a list of prefixes, roots and suffixes
- 1.2 name and locate the organs and structures of the digestive tract, including the following:
 - 1.2.1 the mouth, tongue and teeth
 - 1.2.2 the pharynx and esophagus
 - 1.2.3 the stomach
 - 1.2.4 the small intestine, including the duodenum, jejunum and ileum
 - 1.2.5 the large intestine, including the cecum, appendix, ascending, descending and sigmoid colons, rectum and anus
- 1.3 name and locate the following accessory organs of the digestive system:
 - 1.3.1 salivary glands
 - 1.3.2 liver
 - 1.3.3 gallbladder
 - 1.3.4 pancreas
- 1.4 locate important sphincters in the digestive system
- 1.5 define the processes of digestion, absorption and elimination
- 1.6 categorize the organs of the digestive tract and accessory organs according to function in the processes of digestion, absorption and elimination
- 1.7 differentiate between mechanical and chemical digestion

2. analyze the processes of digestion and elimination

- 2.1 describe the role of enzymes in the process of digestion
- 2.2 identify the products of digestion related to enzymes (sugars, peptides, glycerol and fatty acids)
- 2.3 describe the role of water in the process of digestion
- 2.4 explain the process of digestion in each of the organs of the digestive tract from ingestion through to elimination by:
 - 2.4.1 explaining the function of each organ
 - 2.4.2 identifying the nutrients digested in each organ
 - 2.4.3 explaining the action of secretions and enzymes in each organ
- 2.5 explain the process of absorption, including:
 - 2.5.1 describing how nutrients are moved into the circulatory system
 - 2.5.2 explaining the importance of surface area and the folding of membranes in the small intestine
 - 2.5.3 explaining the absorption of simple sugars
 - 2.5.4 explaining the absorption of fats
 - 2.5.5 explaining the absorption of vitamins and minerals
 - 2.5.6 explaining the absorption of amino acids

- 2.6 explain control mechanisms for the process of digestion, including:
 - 2.6.1 describing the importance of controlling rate of movement
 - 2.6.2 describing the importance of controlling secretions in each organ
 - 2.6.3 identifying the basic roles of the parasympathetic and sympathetic nervous system
 - 2.6.4 summarizing hormonal controls in the digestive system
 - 2.6.5 differentiating between hunger and appetite
- 2.7 describe the process of elimination and detoxification in the liver
- 2.8 describe the process of elimination in the large intestine and factors that inhibit or alter regular elimination
- 3. analyze nutrition at the cellular level**
 - 3.1 define metabolism and metabolic rate
 - 3.2 state the difference between catabolism and anabolism
 - 3.3 describe factors that affect metabolic rate
 - 3.4 define cellular respiration
 - 3.5 recognize glucose as the main source of energy at the cellular level
 - 3.6 explain the action of insulin
 - 3.7 differentiate between type 1 and type 2 diabetes, based on:
 - 3.7.1 age of onset
 - 3.7.2 recent trends
- 4. evaluate factors that contribute to the promotion and maintenance of a healthy digestive system**
 - 4.1 summarize the role of the digestive system in achieving and maintaining wellness
 - 4.2 list and describe the role of the major nutrients
 - 4.3 explain the impact of hydration on healthy digestion
 - 4.4 summarize the basic effects of aging on the function of the digestive system
 - 4.5 predict the effect of lifestyle choices on the wellness of the digestive system, including choices related to cultural beliefs and practices
 - 4.6 recommend preventative lifestyle choices required for digestive wellness, including describing the relationship of:
 - 4.6.1 active living to digestive health
 - 4.6.2 proper nutrition to digestive health
- 5. explain the basic pathology and treatment of digestive conditions**
 - 5.1 summarize the signs and symptoms of common digestive conditions
 - 5.2 summarize causes of digestive system pathologies
 - 5.3 describe diagnostic procedures available for these conditions
 - 5.4 summarize medical and integrative health treatments available for conditions of the digestive system
 - 5.5 summarize the role of dietary management for the treatment and management of various conditions
 - 5.6 describe the impact of pathologies of the digestive system on other body systems
 - 5.7 explain the social, emotional and economic impact of these conditions on the individual, family, peers and community
 - 5.8 summarize community resources available for people living with digestive system pathologies
- 6. demonstrate basic competencies**
 - 6.1 demonstrate fundamental skills to:
 - 6.1.1 communicate
 - 6.1.2 manage information
 - 6.1.3 use numbers
 - 6.1.4 think and solve problems

- 6.2 demonstrate personal management skills to:
 - 6.2.1 demonstrate positive attitudes and behaviours
 - 6.2.2 be responsible
 - 6.2.3 be adaptable
 - 6.2.4 learn continuously
 - 6.2.5 work safely
- 6.3 demonstrate teamwork skills to:
 - 6.3.1 work with others
 - 6.3.2 participate in projects and tasks
- 7. make personal connections to the cluster content and processes to inform possible pathway choices**
 - 7.1 complete/update a personal inventory; e.g., interests, values, beliefs, resources, prior learning and experiences
 - 7.2 create a connection between a personal inventory and occupational choices

COURSE HCS1070: RESPIRATORY SYSTEM

Level: Introductory

Prerequisite: HSS1010: Health Services Foundations

Description: Students acquire the attitudes, skills and knowledge for achieving and maintaining respiratory health, and study pathologies of the respiratory system to gain an appreciation for practising a healthy lifestyle as it pertains to the individual, family, peers and community.

Supporting Courses: HCS1080: Cardiovascular System
HCS2020: First Aid/CPR with AED

Outcomes: The student will:

1. explain the anatomy and function of the respiratory system

- 1.1 define common terms related to the respiratory system using a list of prefixes, roots and suffixes
- 1.2 name and locate the organs and structures of the respiratory system, including:
 - 1.2.1 nasal cavities
 - 1.2.2 pharynx
 - 1.2.3 larynx
 - 1.2.4 trachea
 - 1.2.5 bronchi
 - 1.2.6 lungs
 - 1.2.7 pleura and mediastinum
 - 1.2.8 alveoli
 - 1.2.9 diaphragm
 - 1.2.10 intercostal muscles
- 1.3 define respiration
- 1.4 explain the three phases of respiration
- 1.5 summarize the function of the organs and structures of the respiratory system
- 1.6 explain the mechanism of pulmonary ventilation, including:
 - 1.6.1 inhalation and compliance
 - 1.6.2 exhalation
- 1.7 assess lung volumes and their associated values by measuring them using a spirometer
- 1.8 explain the process of gas exchange in lungs and tissues, including the role of blood
- 1.9 explain the transport of oxygen and carbon dioxide, including the role of blood and the:
 - 1.9.1 importance of hemoglobin
 - 1.9.2 process of diffusion at the cellular level
 - 1.9.3 interpretation of basic blood–gas values
 - 1.9.4 regulation of pH
- 1.10 explain the process of respiratory regulation, both nervous control and chemical control, including:
 - 1.10.1 central chemoreceptors
 - 1.10.2 peripheral chemoreceptors

- 1.11 assess respiratory rate and volume, including:
 - 1.11.1 differentiating between hyperventilation and hypoventilation
 - 1.11.2 defining a normal breathing pattern
 - 1.11.3 recognizing types of altered breathing
 - 1.11.4 describing results of altered breathing
- 2. evaluate factors that contribute to the promotion and maintenance of a healthy respiratory system**
 - 2.1 summarize the role of the respiratory system in achieving and maintaining wellness
 - 2.2 summarize the basic effects of aging on the function of the respiratory system
 - 2.3 predict the effect of lifestyle choices on wellness of the respiratory system, including choices related to cultural beliefs and practices
 - 2.4 recommend preventative lifestyle choices required for respiratory wellness, including describing the relationship of:
 - 2.4.1 active living to respiratory health
 - 2.4.2 proper nutrition to respiratory health
- 3. explain the basic pathology and treatment of respiratory conditions**
 - 3.1 summarize the signs and symptoms of common respiratory conditions
 - 3.2 summarize causes of respiratory system pathologies
 - 3.3 describe diagnostic procedures available for conditions of the respiratory system
 - 3.4 summarize medical and integrative health treatments available for conditions of the respiratory system
 - 3.5 describe the impact of pathologies of the respiratory system on other body systems
 - 3.6 explain the social, emotional and economic impact of respiratory conditions on the individual, family, peers and community
 - 3.7 summarize community resources available for people living with respiratory system pathologies
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. make personal connections to the cluster content and processes to inform possible pathway choices**
 - 5.1 complete/update a personal inventory; e.g., interests, values, beliefs, resources, prior learning and experiences
 - 5.2 create a connection between a personal inventory and occupational choices

COURSE HCS1080: CARDIOVASCULAR SYSTEM

Level: Introductory

Prerequisite: HSS1010: Health Services Foundations

Description: Students acquire the attitude, knowledge and skills for the promotion and maintenance of a healthy cardiovascular system. Students study the pathology of cardiovascular conditions, and gain an appreciation for practising a healthy lifestyle as it pertains to the individual, family, peers and community.

Supporting Courses: HCS1070: Respiratory System
HCS2020: First Aid/CPR with AED

Outcomes: The student will:

1. explain the anatomy and function of the heart

- 1.1 define common terms related to the cardiovascular system using a list of prefixes, roots and suffixes
- 1.2 name and locate the structures of the heart, including the:
 - 1.2.1 layers of heart muscle
 - 1.2.2 pericardium
 - 1.2.3 four chambers of the heart
 - 1.2.4 valves of the heart
 - 1.2.5 blood supply to the heart
- 1.3 describe the function of the heart, including a summary of:
 - 1.3.1 the phases of diastole and systole
 - 1.3.2 cardiac output, including stroke volume and heart rate
- 1.4 diagram the blood flow in the pulmonary and systemic circuits

2. explain the basic anatomy and function of blood and blood vessels

- 2.1 name and locate the major and minor vessels of the arterial system
- 2.2 name and locate the major and minor vessels of the venous system
- 2.3 differentiate between the structure and function of veins, venules, arteries, arterioles and capillaries
- 2.4 list the major constituents of blood and their function
- 2.5 identify and categorize blood types
- 2.6 outline the role of common blood tests as an indicator of health and wellness of body systems

3. analyze the physiology of circulation

- 3.1 describe the exchange of gases in the capillaries of the alveoli, including:
 - 3.1.1 blood pressure
 - 3.1.2 diffusion
 - 3.1.3 osmotic pressure
- 3.2 describe the dynamics of blood flow, including:
 - 3.2.1 comparing the flow of blood in arteries and veins
 - 3.2.2 describing factors causing resistance to blood flow
- 3.3 interpret measures of blood pressure and heart rate as signs of circulatory health, including:
 - 3.3.1 identifying systolic and diastolic sounds during the monitoring of blood pressure
 - 3.3.2 identifying healthy pulse rates and blood pressure readings
 - 3.3.3 identifying hypotensive and hypertensive blood pressure readings
 - 3.3.4 describing the significance of heart sounds, including murmurs
 - 3.3.5 comparing the characteristics of variations in heart rate

- 4. evaluate factors that contribute to the promotion and maintenance of a healthy cardiovascular system**
 - 4.1 summarize the role of the cardiovascular system in achieving and maintaining wellness
 - 4.2 summarize the basic effects of aging on the function of the cardiovascular system
 - 4.3 predict the effect of lifestyle choices on the wellness of the cardiovascular system, including choices related to cultural beliefs and practices
 - 4.4 recommend preventative lifestyle choices required for cardiovascular wellness, including describing the relationship of:
 - 4.4.1 active living to cardiovascular health
 - 4.4.2 proper nutrition to cardiovascular health, including cholesterol factors
- 5. explain the basic pathology and treatment of cardiovascular conditions**
 - 5.1 summarize the signs and symptoms of common cardiovascular conditions, including the types of coronary artery disease and vascular disorders
 - 5.2 summarize causes of cardiovascular system pathologies
 - 5.3 describe diagnostic procedures available for conditions of the cardiovascular system, including cultural beliefs and practices that affect decisions to use procedures
 - 5.4 summarize medical and integrative health treatments available for conditions of the cardiovascular system, including cultural beliefs and practices that affect the use of treatments
 - 5.5 describe the impact of pathologies of the cardiovascular system on other body systems
 - 5.6 explain the social, emotional and economic impact of cardiovascular conditions on the individual, family, peers and community
 - 5.7 summarize community resources available for people living with cardiovascular system pathologies
- 6. demonstrate basic competencies**
 - 6.1 demonstrate fundamental skills to:
 - 6.1.1 communicate
 - 6.1.2 manage information
 - 6.1.3 use numbers
 - 6.1.4 think and solve problems
 - 6.2 demonstrate personal management skills to:
 - 6.2.1 demonstrate positive attitudes and behaviours
 - 6.2.2 be responsible
 - 6.2.3 be adaptable
 - 6.2.4 learn continuously
 - 6.2.5 work safely
 - 6.3 demonstrate teamwork skills to:
 - 6.3.1 work with others
 - 6.3.2 participate in projects and tasks
- 7. make personal connections to the cluster content and processes to inform possible pathway choices**
 - 7.1 complete/update a personal inventory; e.g., interests, values, beliefs, resources, prior learning and experiences
 - 7.2 create a connection between a personal inventory and occupational choices

COURSE HCS1100: INFECTION & IMMUNITY 1

Level: Introductory

Prerequisite: HSS1010: Health Services Foundations

Description: Students learn the principles of infection and infectious disease as well as acquire the attitudes, knowledge and skills related to the integumentary system. Students acquire knowledge and skills necessary for achieving and maintaining a healthy integumentary system and for preventing the spread of communicable disease. Students gain an appreciation for practicing a healthy lifestyle as it pertains to the individual, family, peers and community.

Outcomes: The student will:

1. explain infectious diseases and disease processes

- 1.1 define common terms related to infectious diseases and organisms using a list of prefixes, roots and suffixes
- 1.2 describe body defence mechanisms using a list of prefixes, roots and suffixes
- 1.3 outline historical and present-day examples of epidemic, endemic and pandemic occurrences of diseases
- 1.4 differentiate between local, general, systemic and opportunistic infections
- 1.5 summarize the characteristics of disease producing microorganisms and worms, including bacteria, viruses, fungi, protozoa and prions, and:
 - 1.5.1 identify three types of bacteria
 - 1.5.2 identify examples and benefits of normal flora
- 1.6 explain how communicable infections occur (chain of infection), including:
 - 1.6.1 identifying role of hosts, vectors and carriers
 - 1.6.2 identifying the body's portals of entry and exit
 - 1.6.3 discussing person-to-person direct contact
 - 1.6.4 discussing person-to-person indirect contact
 - 1.6.5 discussing indirect contact through insects and pests
- 1.7 explain factors that influence the acquisition and strength of an infection, including:
 - 1.7.1 portals of entry
 - 1.7.2 tissue preference of pathogen
 - 1.7.3 virulence of pathogen, including invasive power and production of toxins
 - 1.7.4 dose of pathogen
 - 1.7.5 predisposition of host
- 1.8 identify common diseases produced by bacteria, viruses, fungi, protozoa and worms
- 1.9 differentiate between viral and bacterial infections
- 1.10 identify causes of the common cold and associated myths

2. explain principles of microbial control in public health and health care

- 2.1 summarize factors that contribute to the emergence and spread of microorganisms, including factors related to:
 - 2.1.1 population
 - 2.1.2 geography
 - 2.1.3 cultural beliefs and practices
 - 2.1.4 disruption of animal habitats
 - 2.1.5 globalization and ability to travel
 - 2.1.6 medical advances
 - 2.1.7 public health and food handling practices

- 2.2 explain the phrase “breaking the chain”
- 2.3 summarize public health practices for microbial control, considering community resources to support control of the chain of infection, including the following:
 - 2.3.1 sewage and garbage disposal
 - 2.3.2 water purification
 - 2.3.3 prevention of food contamination
 - 2.3.4 milk pasteurization
 - 2.3.5 cleaning protocols for food preparation and service
- 2.4 compare processes to control infection, including:
 - 2.4.1 sterilization
 - 2.4.2 disinfectants and antiseptics
 - 2.4.3 general cleaning procedures used in homes and community settings
- 2.5 differentiate between antibiotics and antiviral medications, considering:
 - 2.5.1 how they function to kill microorganisms
 - 2.5.2 advantages and disadvantages
- 2.6 justify the importance of hand washing
- 2.7 recommend preventative lifestyle choices for avoiding the common cold and other common infections and illnesses
- 2.8 justify considerations for return-to-work protocols for professionals working with the public
- 3. explain the basic anatomy and function of the integumentary system**
 - 3.1 define common terms related to the integumentary system using a list of prefixes, roots and suffixes
 - 3.2 describe the structure and function of the three layers of skin
 - 3.3 describe the structure and function of accessory structures, including:
 - 3.3.1 hair
 - 3.3.2 nails
 - 3.3.3 sebaceous glands
 - 3.3.4 sweat glands
 - 3.4 describe the functions of the integumentary system, including the following:
 - 3.4.1 mechanical barrier to infection
 - 3.4.2 chemical barrier to infection
 - 3.4.3 role in hydration
 - 3.4.4 excretion and regulation of body temperature
 - 3.4.5 collection of sensory information
 - 3.4.6 absorption of some medications
 - 3.4.7 manufacture of Vitamin D
- 4. assess the skin as an indicator of health and wellness**
 - 4.1 identify common colours of skin and discolorations of skin related to a healthy integumentary system
 - 4.2 interpret the colours of skin and discolorations of skin related to changes in health or physiological status
 - 4.3 identify lesions, including the following:
 - 4.3.1 surface lesions, including macules, papules, vesicles and pustules
 - 4.3.2 deeper lesions, including excoriations, lacerations, ulcers and fissures
 - 4.4 interpret possible reasons for lesions of the skin
 - 4.5 differentiate between first-, second- and third-degree burns
 - 4.6 identify examples of damage due to exposure to the sun
- 5. evaluate factors that contribute to the promotion and maintenance of a healthy integumentary system**
 - 5.1 summarize the role of the integumentary system in achieving and maintaining wellness
 - 5.2 summarize the effects of aging on the function of the integumentary system

- 5.3 predict the effect of lifestyle choices on the wellness of the integumentary system, including choices related to cultural beliefs and practices
- 5.4 recommend preventative lifestyle choices required for integumentary wellness, including describing the:
 - 5.4.1 relationship of active living to integumentary health
 - 5.4.2 relationship of proper nutrition to integumentary health
 - 5.4.3 importance of protection from overexposure to sunlight
- 6. explain the basic pathology and treatment of integumentary system conditions**
 - 6.1 summarize the signs and symptoms of common integumentary conditions
 - 6.2 summarize causes of integumentary system pathologies, including the effects of overexposure to sun
 - 6.3 describe diagnostic procedures available for these conditions
 - 6.4 summarize medical and integrative health treatments available for conditions of the integumentary system
 - 6.5 summarize the role of dietary management for the treatment and management of various conditions
 - 6.6 describe the impact of pathologies of the integumentary system on other body systems
 - 6.7 explain the social, emotional and economic impact of these conditions on the individual, family, peers and community
 - 6.8 summarize community resources available for people living with integumentary system pathologies
- 7. demonstrate basic competencies**
 - 7.1 demonstrate fundamental skills to:
 - 7.1.1 communicate
 - 7.1.2 manage information
 - 7.1.3 use numbers
 - 7.1.4 think and solve problems
 - 7.2 demonstrate personal management skills to:
 - 7.2.1 demonstrate positive attitudes and behaviours
 - 7.2.2 be responsible
 - 7.2.3 be adaptable
 - 7.2.4 learn continuously
 - 7.2.5 work safely
 - 7.3 demonstrate teamwork skills to:
 - 7.3.1 work with others
 - 7.3.2 participate in projects and tasks
- 8. make personal connections to the cluster content and processes to inform possible pathway choices**
 - 8.1 complete/update a personal inventory; e.g., interests, values, beliefs, resources, prior learning and experiences
 - 8.2 create a connection between a personal inventory and occupational choices

COURSE HCS1110: INFECTION & IMMUNITY 2

Level: Introductory

Prerequisite: HCS1100: Infection & Immunity 1

Description: Students acquire attitudes, knowledge and skills related to basic principles of immunity and the processes involved in the initial defense mechanisms to prevent infection. Students complete a study of the components of blood, pathologies related to blood, and the role of blood in the body's defence as an indicator of health and wellness. Students gain an appreciation for practising a healthy lifestyle as it pertains to the individual, family, peers and community.

Supporting Course: HCS1080: Cardiovascular System

Outcomes: The student will:

1. explain basic principles of immunity and the defence systems of the body

- 1.1 differentiate between innate immunity (non-specific immunity) and acquired immunity (specific immunity)
- 1.2 summarize the role of the following chemical and mechanical barriers in the body as a first line of defence in preventing the invasion of foreign substances:
 - 1.2.1 skin
 - 1.2.2 sebaceous and sweat glands
 - 1.2.3 mucous membranes and mucous secretions
 - 1.2.4 cilia
 - 1.2.5 body secretions, including tears, saliva and gastric juices
 - 1.2.6 reflexes, including coughing, sneezing, vomiting and diarrhea
 - 1.2.7 blood clotting and the inflammatory response
- 1.3 summarize the role of symbiotic organisms as part of the body's defence system
- 1.4 describe other non-specific lines of defence, including:
 - 1.4.1 the roles of complement and interferon
 - 1.4.2 phagocytosis (the second line of defense)
 - 1.4.3 natural killer cells
 - 1.4.4 inflammation
 - 1.4.5 fever

2. explain constituents and functions of blood

- 2.1 define common terms related to blood and fluid balance using a list of prefixes, roots and suffixes
- 2.2 summarize the functions of blood, including:
 - 2.2.1 transportation of oxygen, carbon dioxide, nutrients, minerals, vitamins, hormones and waste
 - 2.2.2 regulation of pH, fluid balance and body temperature
 - 2.2.3 protection against foreign organisms and blood loss
- 2.3 categorize the components of blood into plasma components and formed elements
- 2.4 rate the components of blood, based on percentage of total blood volume
- 2.5 categorize formed elements of blood, based on appearance in blood stain samples
- 2.6 compare the characteristics and functions of the five types of leukocytes
- 2.7 analyze the components of blood as indicators of health

- 3. describe the mechanisms of protection provided by the blood**
 - 3.1 describe the events that occur to prevent blood loss from the skin barrier after an injury, including:
 - 3.1.1 vasoconstriction
 - 3.1.2 formation of platelet plug
 - 3.1.3 initial formation of a blood clot
 - 3.1.4 final formation of a blood clot
 - 3.1.5 significance of the presence of serum at the end of the clotting process
 - 3.2 describe the role of inflammatory processes in the body as a defence mechanism
 - 3.3 differentiate between local and systemic inflammatory responses
 - 3.4 describe the events that occur to produce an inflammatory response to infection
- 4. evaluate factors that contribute to the promotion and maintenance of healthy blood**
 - 4.1 summarize the role of blood in achieving and maintaining wellness
 - 4.2 summarize the basic effects of aging on the function of blood and blood flow
 - 4.3 predict the effect of lifestyle choices on the health of blood and maintaining healthy blood flow, including choices related to cultural beliefs and practices
 - 4.4 recommend preventative lifestyle choices required for healthy blood flow, including describing the relationship of:
 - 4.4.1 active living to healthy blood and blood flow
 - 4.4.2 proper nutrition to healthy blood and blood flow
- 5. explain the basic pathology and treatment of conditions of the blood**
 - 5.1 summarize the signs and symptoms of common conditions of the blood and blood flow
 - 5.2 summarize causes of pathologies related to blood and compromised blood flow
 - 5.3 describe diagnostic procedures available for conditions related to blood and compromised blood flow, including restrictions related to cultural beliefs and practices
 - 5.4 summarize medical and integrative health treatments available for blood conditions, including cultural beliefs and practices that influence decisions to obtain treatments
 - 5.5 summarize the role of dietary management for the treatment and management of various conditions
 - 5.6 describe the impact of pathologies of the blood and blood vessels on other body systems
 - 5.7 explain the social, emotional and economic impact of these conditions on the individual, family, peers and community
 - 5.8 summarize community resources available for people living with blood pathologies
- 6. demonstrate basic competencies**
 - 6.1 demonstrate fundamental skills to:
 - 6.1.1 communicate
 - 6.1.2 manage information
 - 6.1.3 use numbers
 - 6.1.4 think and solve problems
 - 6.2 demonstrate personal management skills to:
 - 6.2.1 demonstrate positive attitudes and behaviours
 - 6.2.2 be responsible
 - 6.2.3 be adaptable
 - 6.2.4 learn continuously
 - 6.2.5 work safely
 - 6.3 demonstrate teamwork skills to:
 - 6.3.1 work with others
 - 6.3.2 participate in projects and tasks

- 7. make personal connections to the cluster content and processes to inform possible pathway choices**
 - 7.1 complete/update a personal inventory; e.g., interests, values, beliefs, resources, prior learning and experiences
 - 7.2 create a connection between a personal inventory and occupational choices

COURSE HCS1910: HCS PROJECT A

Level: Introductory

Prerequisite: None

Description: Students develop project design and management skills to extend and enhance competencies and skills in other CTS courses through contexts that are personally relevant.

Parameters: Introductory project courses must connect with a minimum of two CTS courses, one of which must be at the introductory level and be in the same occupational area as the project course. The other CTS course(s) can be either at the same level or at the intermediate level from any occupational area.

Project courses cannot be connected to other project courses or practicum courses.

All projects and/or performances, whether teacher- or student-led, must include a course outline or student proposal.

Outcomes:

The teacher/student will:

- 1. identify the connection between this project course and two or more CTS courses**
 - 1.1 identify the outcome(s) from each identified CTS course that support the project and/or performance deliverables
 - 1.2 explain how these outcomes are being connected to the project and/or performance deliverables
- 2. propose the project and/or performance**
 - 2.1 identify the project and/or performance by:
 - 2.1.1 preparing a plan
 - 2.1.2 clarifying the purposes
 - 2.1.3 defining the deliverables
 - 2.1.4 specifying time lines
 - 2.1.5 explaining terminology, tools and processes
 - 2.1.6 defining resources; e.g., materials, costs, staffing
 - 2.2 identify and comply with all related health and safety standards
 - 2.3 define assessment standards (indicators for success)
 - 2.4 present the proposal and obtain necessary approvals

The student will:

- 3. meet goals as defined within the plan**
 - 3.1 complete the project and/or performance as outlined
 - 3.2 monitor the project and/or performance and make necessary adjustments
 - 3.3 present the project and/or performance, indicating the:
 - 3.3.1 outcomes attained
 - 3.3.2 relationship of outcomes to goals originally set

- 3.4 evaluate the project and/or performance, indicating the:
 - 3.4.1 processes and strategies used
 - 3.4.2 recommendations on how the project and/or performance could have been improved
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. make personal connections to the cluster content and processes to inform possible pathway choices**
 - 5.1 complete/update a personal inventory; e.g., interests, values, beliefs, resources, prior learning and experiences
 - 5.2 create a connection between a personal inventory and occupational choices

COURSE HCS2020: FIRST AID/CPR WITH AED

Level: Intermediate

Prerequisite: None

Description: Students study and demonstrate first-aid skills and procedures, including cardiopulmonary resuscitation (CPR) and automatic external defibrillator (AED), for dealing with emergency situations. Students recommend practices for a safe environment and demonstrate skills and procedures for dealing with common emergency situations. Students examine safety strategies to prevent infection from blood-borne pathogens in health care and recreational settings.

Parameters: Access to instruction from an individual with a recognized instructor's certificate for first aid with Level C CPR with AED.

Note: Successful completion of this course enables students to apply for certification in standard first aid with CPR and AED when they meet the competencies and requirements specified by an approved credentialing agency; e.g., St. John Ambulance or Canadian Red Cross. An approved agency list is available from the Director of Medical Services at [Alberta Jobs, Skills, Training and Labour: First Aid Agencies](#).

Outcomes: The student will:

- 1. describe the roles and responsibilities of the first-aider for providing first aid for all individuals, including children and infants**
 - 1.1 outline the objectives of first aid
 - 1.2 state the universal safety precautions in first aid, including routine precautions for disease transmission
 - 1.3 identify preparations for emergencies
 - 1.4 outline the legal implications of performing first aid in Alberta
 - 1.5 differentiate between life-threatening and non-life-threatening emergencies
- 2. demonstrate the principles of and the first-aid procedures used in emergency-scene management**
 - 2.1 conduct a proper scene survey using principles of safety
 - 2.2 conduct a primary survey of casualties for life-threatening conditions
 - 2.3 perform on-going casualty care until transfer to medical aid (e.g., a paramedic or a doctor) occurs
- 3. summarize causes, signs and symptoms of emergency injuries and conditions for all individuals, including children and infants, for the following:**
 - 3.1 shock, unconsciousness and fainting
 - 3.2 breathing and choking emergencies
 - 3.3 internal bleeding and external wound care
 - 3.4 cardiovascular disease and related emergencies
 - 3.5 head, spinal and pelvic injuries
 - 3.6 bone and joint injuries, including muscle strains
 - 3.7 sudden medical conditions; e.g., diabetic emergencies and seizures
 - 3.8 heat- and cold-related emergencies; e.g., heat stroke and hypothermia

- 4. demonstrate first-aid procedures, including the use of CPR and the operation of an AED, when necessary, used in the following:**
 - 4.1 shock, unconsciousness and fainting
 - 4.2 breathing emergencies, including:
 - 4.2.1 breathing emergencies for suspected head/spinal injuries
 - 4.2.2 choking
 - 4.3 wound care, including:
 - 4.3.1 external wounds
 - 4.3.2 internal bleeding
 - 4.3.3 amputations and amputated tissue
 - 4.3.4 eye injuries; e.g., foreign bodies, penetrating/protruding objects
 - 4.3.5 chemical burns to the eyes and skin
 - 4.3.6 thermal injuries to the eyes and skin
 - 4.3.7 frostbite
 - 4.4 cardiovascular emergencies, including:
 - 4.4.1 angina and heart attack
 - 4.4.2 cardiac arrest
 - 4.4.3 stroke
 - 4.5 bone and joint injuries of upper and lower extremities and muscle strains
 - 4.6 head, spinal and pelvic injuries, including controlling bleeding from the scalp and the ears
 - 4.7 medical conditions, including:
 - 4.7.1 diabetic emergencies
 - 4.7.2 seizures
 - 4.7.3 asthmatic emergencies
 - 4.7.4 allergic reactions
 - 4.8 heat and cold emergencies, including:
 - 4.8.1 heat-related conditions; e.g., heat cramps, heat exhaustion, heat stroke
 - 4.8.2 cold-related conditions; e.g., hypothermia
- 5. apply principles of secondary survey**
 - 5.1 determine history of casualty
 - 5.2 check consciousness; breathing rate and rhythm; and skin colour and dampness
 - 5.3 perform a head-to-toe examination for secondary injuries
 - 5.4 provide first aid for non-life-threatening conditions
- 6. describe how to meet the physical, emotional, psychological and social needs of all individuals involved in an emergency**
 - 6.1 discuss typical reactions
 - 6.2 describe barriers to action that may influence the actions of the first-aider
 - 6.3 identify available resources
- 7. recommend practices that provide a safe environment and prevent emergency situations and/or injuries**
 - 7.1 recommend practices to prevent emergency situations and/or injuries in several locations, including:
 - 7.1.1 at home
 - 7.1.2 at work
 - 7.1.3 at school
 - 7.1.4 with motorized vehicles
 - 7.1.5 at play

- 7.2 recommend specific safety practices for the environments of infants and children, including:
 - 7.2.1 at home
 - 7.2.2 at school
 - 7.2.3 with motorized vehicles
 - 7.2.4 at play
- 7.3 compare components of standard first-aid kits recommended by the Alberta Occupational Health and Safety program for various settings such as community disability support, recreation and health care
- 7.4 summarize legal requirements for first-aiders in Alberta by:
 - 7.4.1 summarizing Alberta's good samaritan legislation in the *Emergency Medical Aid Act*
 - 7.4.2 identifying sections of the *Occupational Health and Safety Code* that govern first aid in the workplace
 - 7.4.3 identifying sections of the *Workers' Compensation Act* that govern first aid for employees who are injured
- 8. demonstrate safety precautions specifically related to blood-borne pathogens**
 - 8.1 compare the pathology and treatment of Hepatitis A, Hepatitis B, Hepatitis C and HIV, including:
 - 8.1.1 methods of transmission
 - 8.1.2 risks of infection related to occupation, travel and/or contact with infected individuals in the community
 - 8.1.3 causes and complications of infection
 - 8.1.4 signs and symptoms at all phases of the disease process
 - 8.1.5 treatment
 - 8.1.6 prognosis
 - 8.1.7 rates of incidence and prevalence
 - 8.2 identify specific occupations and activities that have increased risk of transmission particular to community-supported health care, recreation and sport
 - 8.3 differentiate between standard precautions and universal precautions
 - 8.4 justify the use of a standard precautions protocol to prevent the contraction of blood-borne pathogens
 - 8.5 describe common engineering controls and work practice controls for blood-borne pathogens, including protocols for:
 - 8.5.1 the disposal of sharps and related equipment
 - 8.5.2 handling laundry
 - 8.6 demonstrate the correct use of personal protective equipment, including the removal and disposal of equipment after use
 - 8.7 describe considerations for vaccination against Hepatitis B
 - 8.8 describe screening tests available for Hepatitis C and HIV
 - 8.9 describe the components of a workplace exposure plan for blood-borne pathogens
 - 8.10 demonstrate strategies for immediate first aid and reporting following an exposure to blood-borne pathogens
 - 8.11 describe common workplace procedures for labelling, containing and handling regulated waste
 - 8.12 identify labels that communicate the hazard of blood-borne pathogens
- 9. demonstrate basic competencies**
 - 9.1 demonstrate fundamental skills to:
 - 9.1.1 communicate
 - 9.1.2 manage information
 - 9.1.3 use numbers
 - 9.1.4 think and solve problems

- 9.2 demonstrate personal management skills to:
 - 9.2.1 demonstrate positive attitudes and behaviours
 - 9.2.2 be responsible
 - 9.2.3 be adaptable
 - 9.2.4 learn continuously
 - 9.2.5 work safely

- 9.3 demonstrate teamwork skills to:
 - 9.3.1 work with others
 - 9.3.2 participate in projects and tasks

10. identify possible life roles related to the skills and content of this cluster

- 10.1 recognize and then analyze the opportunities and barriers in the immediate environment
- 10.2 identify potential resources to minimize barriers and maximize opportunities

COURSE HCS2050: NERVOUS SYSTEM & SENSES

Level: Intermediate

Prerequisite: HSS1010: Health Services Foundations

Description: Students acquire the attitudes, knowledge and skills necessary for the promotion and maintenance of a healthy nervous and sensory system. Students study pathologies of the nervous system and sensory organs, and gain an appreciation for practising a healthy lifestyle as it pertains to the individual, family, peers and community.

Supporting Course: HCS2060: Endocrine System

Outcomes: The student will:

1. explain the basic anatomy and function of the nervous system

- 1.1 define common terms related to the nervous system using a list of prefixes, roots and suffixes
- 1.2 describe the organization of the nervous system according to structure, including:
 - 1.2.1 naming and locating basic components of the central nervous system, including grey and white matter
 - 1.2.2 naming and locating basic components of the peripheral nervous system, including dermatomes
- 1.3 describe the organization of the nervous system and sensory organs according to function, including:
 - 1.3.1 identifying voluntary and involuntary controls in the body
 - 1.3.2 identifying effectors in the somatic and autonomic systems
 - 1.3.3 differentiating between the functions of the sympathetic and parasympathetic system
 - 1.3.4 differentiating between special senses and general senses
- 1.4 explain the structure and function of neurons and neuroglia by:
 - 1.4.1 diagramming the structure of neurons
 - 1.4.2 differentiating between sensory, afferent and efferent neurons, and interneurons
 - 1.4.3 differentiating between myelinated and unmyelinated neurons
- 1.5 explain the structure and function of nerves and tracts, including afferent, efferent and mixed nerves
- 1.6 summarize how a nerve impulse is transmitted by:
 - 1.6.1 describing the roles of sensory receptors, including sensory neurons, effectors and specialized sensory cells
 - 1.6.2 classifying sensory receptors into four categories (chemoreceptors, photoreceptors, thermoreceptors and mechanoreceptors)
 - 1.6.3 explaining sensory adaptation
 - 1.6.4 diagramming an action potential
 - 1.6.5 explaining the role of myelin in relation to action potential
 - 1.6.6 describing impulse transmission at the synapse, including the function of several neurotransmitters and the role of cellular receptors in the action of neurotransmission
- 1.7 analyze a reflex arc using personal experiences by:
 - 1.7.1 describing the components of a reflex arc
 - 1.7.2 describing several examples of reflexes in the body
 - 1.7.3 demonstrating location of personal reflexes

- 1.8 name and locate the structures of the brain, including the:
 - 1.8.1 four main divisions of the brain (cerebrum, diencephalon, brain stem, cerebellum)
 - 1.8.2 lobes of the cerebrum (frontal, parietal, temporal, occipital, insula)
 - 1.8.3 thalamus and hypothalamus
 - 1.8.4 pituitary and pineal glands
 - 1.8.5 midbrain, pons and medulla oblongata
 - 1.8.6 limbic system, including hippocampus and reticular formation
 - 1.8.7 protective structures, including meninges, cerebrospinal fluid and blood-brain barrier
 - 1.8.8 twelve cranial nerves
 - 1.8.9 grey and white matter
 - 1.8.10 central and lateral sulci
 - 1.8.11 basal nuclei
 - 1.8.12 fibrils in the cerebral cortex
- 1.9 describe the basic function of each of the structures of the brain
- 1.10 name and locate the structures of the eye, including:
 - 1.10.1 structures that protect the eyeball
 - 1.10.2 layers of the eyeball (sclera, choroid, retina)
 - 1.10.3 rods and cones
 - 1.10.4 aqueous humor and vitreous humor
 - 1.10.5 lens
 - 1.10.6 major muscles that move the eyeball
 - 1.10.7 intrinsic muscles (iris, ciliary muscles)
 - 1.10.8 sensory nerves that connect to the eye
- 1.11 describe the function of each of the structures of the eye
- 1.12 explain the process of refraction as light rays pass through the eye
- 1.13 differentiate between rods and cones, comparing shape, number, distribution, stimulus, visual acuity, pigments and colour perception
- 1.14 name and locate the structures of the outer, middle and inner ear
- 1.15 describe how structures of the ear function to maintain static and dynamic equilibrium
- 1.16 describe how the structures of the ear function for an individual to hear sound
- 1.17 describe the functions of the sensory system, including allowing:
 - 1.17.1 touch and/or pressure
 - 1.17.2 pain
 - 1.17.3 temperature
 - 1.17.4 taste
 - 1.17.5 kinesthesia and position
 - 1.17.6 smell
- 1.18 compare the roles of the nervous system, sensory system and endocrine system as systems involved in coordination and control
- 2. evaluate factors that contribute to the promotion and maintenance of healthy nervous system and senses**
 - 2.1 summarize the role of the nervous system and sensory system in achieving and maintaining wellness
 - 2.2 summarize the basic effects of aging on the function of the nervous system
 - 2.3 explain the effect of aging on the function of the sensory system
 - 2.4 predict the effect of lifestyle choices on the wellness of the nervous and sensory systems, including choices related to cultural beliefs and practices

- 2.5 recommend preventative lifestyle choices required for nervous and sensory system wellness, including describing the relationship of:
 - 2.5.1 active living to the health of the nervous and sensory systems
 - 2.5.2 proper nutrition to the health of the nervous and sensory systems
- 3. explain the basic pathology and treatment of conditions of the nervous system**
 - 3.1 summarize the signs and symptoms of common conditions of the nervous system
 - 3.2 summarize causes of nervous system pathologies
 - 3.3 describe diagnostic procedures available for conditions of the nervous system
 - 3.4 summarize medical and integrative health treatments available for conditions of the nervous system
 - 3.5 describe the impact of pathologies of the nervous system on other body systems
 - 3.6 explain the social, emotional and economic impact of these conditions on the individual, family, peers and community
 - 3.7 summarize community resources available for people living with nervous system pathologies
- 4. explain the basic pathology and treatment of conditions of the sensory organs**
 - 4.1 summarize the signs and symptoms of common conditions related to sensory organs
 - 4.2 summarize causes of pathologies related to sensory organs
 - 4.3 describe diagnostic procedures available for conditions related to sensory organs
 - 4.4 summarize medical and integrative health treatments available for conditions related to sensory organs
 - 4.5 describe the impact of pathologies of the sensory organs on other body systems
 - 4.6 explain the social, emotional and economic impact of these conditions on the individual, family, peers and community
 - 4.7 summarize community resources available for people living with sensory organ pathologies
- 5. demonstrate basic competencies**
 - 5.1 demonstrate fundamental skills to:
 - 5.1.1 communicate
 - 5.1.2 manage information
 - 5.1.3 use numbers
 - 5.1.4 think and solve problems
 - 5.2 demonstrate personal management skills to:
 - 5.2.1 demonstrate positive attitudes and behaviours
 - 5.2.2 be responsible
 - 5.2.3 be adaptable
 - 5.2.4 learn continuously
 - 5.2.5 work safely
 - 5.3 demonstrate teamwork skills to:
 - 5.3.1 work with others
 - 5.3.2 participate in projects and tasks
- 6. identify possible life roles related to the skills and content of this cluster**
 - 6.1 recognize and then analyze the opportunities and barriers in the immediate environment
 - 6.2 identify potential resources to minimize barriers and maximize opportunities

COURSE HCS2060: ENDOCRINE SYSTEM

Level: Intermediate

Prerequisite: HSS1010: Health Services Foundations

Description: Students acquire the attitudes, knowledge and skills necessary for achieving and maintaining a healthy endocrine system and balanced hormonal health. Students gain an appreciation for practising a healthy lifestyle as it pertains to the individual, family, peers and community.

Supporting Courses: HCS1080: Cardiovascular System
HCS2070: Urinary System
HCS2050: Nervous System & Senses

Outcomes: The student will:

1. explain basic principles of hormonal control and regulation

- 1.1 define common terms related to the endocrine system using a list of prefixes, roots and suffixes
- 1.2 compare the roles and functions of the endocrine system and nervous system in the control and coordination of all other body systems
- 1.3 describe the basic function of exocrine and endocrine hormones as chemical messengers, including their:
 - 1.3.1 secretory functions
 - 1.3.2 effect locally, on specific tissues, or generally on all body systems
 - 1.3.3 ability to bind to receptors on target cells, changing cell activities affecting the manufacture of proteins, permeability of membranes and metabolic reactions
- 1.4 categorize hormones according to chemistry, including the following:
 - 1.4.1 amino acids
 - 1.4.2 lipids, including steroids and prostaglandins
- 1.5 compare the processes of negative feedback, positive feedback and rhythmic hormonal regulation

2. analyze the anatomy and function of the endocrine system

- 2.1 name and locate the glands of the endocrine system
- 2.2 describe the functions of the pituitary gland, including:
 - 2.2.1 describing how it is regulated by the hypothalamus
 - 2.2.2 comparing the functions of the anterior and posterior lobes
 - 2.2.3 diagramming the feedback systems that regulate each hormone secreted by the pituitary gland
- 2.3 justify the pituitary gland as the master gland
- 2.4 describe the functions of the thyroid gland, including:
 - 2.4.1 describing how it is regulated by the hypothalamus
 - 2.4.2 summarizing the functions of the hormones produced by the thyroid gland
 - 2.4.3 diagramming the feedback systems that regulate each hormone secreted by the thyroid gland
- 2.5 describe the functions of the parathyroid glands, including:
 - 2.5.1 summarizing the functions of the hormones produced by the parathyroid glands
 - 2.5.2 diagramming the feedback systems that regulate each hormone secreted by the parathyroid glands

- 2.6 describe the functions of the adrenal medulla, including:
 - 2.6.1 summarizing the functions of the hormones produced by the adrenal medulla
 - 2.6.2 diagramming the feedback systems that regulate each hormone secreted by the adrenal medulla
- 2.7 describe the functions of the adrenal cortex, including:
 - 2.7.1 summarizing the functions of the hormones produced by the adrenal cortex
 - 2.7.2 diagramming the feedback systems that regulate each hormone secreted by the adrenal cortex
- 2.8 describe the functions of the pancreas, including:
 - 2.8.1 summarizing the functions of the hormones produced by the pancreas
 - 2.8.2 diagramming the feedback systems that regulate each hormone secreted by the pancreas
- 2.9 describe the functions of the reproductive glands, including:
 - 2.9.1 summarizing the functions of the hormones produced by the reproductive glands
 - 2.9.2 diagramming the feedback systems that regulate each hormone secreted by the reproductive glands
- 2.10 describe the functions of the thymus, including:
 - 2.10.1 summarizing the functions of the hormones produced by the thymus
 - 2.10.2 diagramming the feedback systems that regulate each hormone secreted by the thymus
- 2.11 describe the functions of the pineal gland, including:
 - 2.11.1 summarizing the functions of the hormones produced by the pineal gland
 - 2.11.2 diagramming the feedback systems that regulate each hormone secreted by the pineal gland
- 3. explain the complexity of the body's response to stress**
 - 3.1 define stress
 - 3.2 list causes of stress
 - 3.3 outline the nervous system's response to stress, including short-term and long-term stress
 - 3.4 describe the endocrine system's response to stress, including short-term and long-term stress
 - 3.5 compare the positive and negative results of stress on other body systems
- 4. explain the use of hormones as a form of medical treatment**
 - 4.1 describe three sources of hormones for medical treatment, including animal tissues, synthetic production and genetic engineering
 - 4.2 describe examples of hormones used in medical treatment, including:
 - 4.2.1 growth hormones
 - 4.2.2 insulin
 - 4.2.3 adrenal steroids
 - 4.2.4 epinephrine
 - 4.2.5 thyroid hormones
 - 4.2.6 oxytocin
 - 4.2.7 androgens
 - 4.2.8 estrogen and progesterone
 - 4.3 identify possible side effects related to hormone therapy
- 5. evaluate factors that contribute to the promotion and maintenance of a healthy endocrine system**
 - 5.1 summarize the role of the endocrine system in achieving and maintaining wellness
 - 5.2 summarize the basic effects of aging on the function of the endocrine system
 - 5.3 predict the effect of lifestyle choices on the wellness of the endocrine system, including choices related to cultural beliefs and practices

- 5.4 recommend preventative lifestyle choices required for endocrine wellness, including:
 - 5.4.1 describing the relationship of active living to endocrine health
 - 5.4.2 describing the relationship of proper nutrition to endocrine health
 - 5.4.3 examining issues related to agriculture and the processing and packaging of food
- 6. explain the basic pathology and treatment of endocrine system conditions**
 - 6.1 summarize the signs and symptoms of common endocrine conditions, including disorders related to hyperactivity and hypoactivity of glands
 - 6.2 summarize causes of endocrine system pathologies
 - 6.3 describe diagnostic procedures available for conditions related to the endocrine system
 - 6.4 summarize medical and integrative health treatments available for conditions of the endocrine system
 - 6.5 summarize the role of dietary management for the treatment and management of various conditions
 - 6.6 describe the impact of pathologies of the endocrine system on other body systems
 - 6.7 explain the social, emotional and economic impact of these conditions on the individual, family, peers and community
 - 6.8 summarize community resources available for people living with pathologies of the endocrine system
- 7. demonstrate basic competencies**
 - 7.1 demonstrate fundamental skills to:
 - 7.1.1 communicate
 - 7.1.2 manage information
 - 7.1.3 use numbers
 - 7.1.4 think and solve problems
 - 7.2 demonstrate personal management skills to:
 - 7.2.1 demonstrate positive attitudes and behaviours
 - 7.2.2 be responsible
 - 7.2.3 be adaptable
 - 7.2.4 learn continuously
 - 7.2.5 work safely
 - 7.3 demonstrate teamwork skills to:
 - 7.3.1 work with others
 - 7.3.2 participate in projects and tasks
- 8. identify possible life roles related to the skills and content of this cluster**
 - 8.1 recognize and then analyze the opportunities and barriers in the immediate environment
 - 8.2 identify potential resources to minimize barriers and maximize opportunities

COURSE HCS2070: URINARY SYSTEM

Level: Intermediate

Prerequisite: HSS1010: Health Services Foundations

Description: Students acquire the attitudes, knowledge and skills necessary for achieving and maintaining urinary health and balanced body fluids. Students gain an appreciation for practising a healthy lifestyle as it pertains to the individual, family, peers and community.

Supporting Courses: HCS2060: Endocrine System
REC2010: Nutrition for Recreation Activities & Sport

Outcomes: The student will:

1. analyze basic principles of fluid balance

- 1.1 describe three important roles water plays in the maintenance of health and wellness, including:
 - 1.1.1 solvent
 - 1.1.2 transport medium
 - 1.1.3 participant in metabolic reactions
- 1.2 define terms related to fluid balance
- 1.3 state the percentage of water in the body related to body weight
- 1.4 compare intracellular and extracellular fluid, naming four types of extracellular fluid
- 1.5 describe how water intake and output is balanced
- 1.6 explain the thirst mechanism
- 1.7 justify the importance of electrolyte balance
- 1.8 justify the importance of pH balance
- 1.9 analyze characteristics of urine as indicators of health, including:
 - 1.9.1 volume
 - 1.9.2 pH
 - 1.9.3 specific gravity
 - 1.9.4 normal constituents
 - 1.9.5 abnormal constituents

2. explain the basic anatomy and functions of the urinary system

- 2.1 define common terms related to the urinary system and fluid balance using a list of prefixes, roots and suffixes
- 2.2 name and locate the major organs of the urinary system
- 2.3 describe the functions of the urinary system, including:
 - 2.3.1 elimination of waste from blood
 - 2.3.2 water balance
 - 2.3.3 acid-base balance and regulation of electrolytes
 - 2.3.4 blood pressure regulation
 - 2.3.5 stimulation of red blood cell production
- 2.4 describe the structures of the kidneys and their role in the formation of urine, including:
 - 2.4.1 connection to the circulatory system (renal vein and artery)
 - 2.4.2 organization (cortex, medulla, pelvis)
 - 2.4.3 the significance of the nephron as the functional unit of the kidneys

- 2.5 diagram the major structures of the nephron, including:
 - 2.5.1 glomerular (Bowman's) capsule
 - 2.5.2 loop of Henle
 - 2.5.3 proximal convoluted tubule
 - 2.5.4 distal convoluted tubule
- 2.6 diagram the blood supply to the nephron, including:
 - 2.6.1 afferent arteriole
 - 2.6.2 glomerular capillaries
 - 2.6.3 efferent arteriole
 - 2.6.4 peritubular capillaries
- 2.7 analyze the formation of urine in each of the structures of the kidney, including:
 - 2.7.1 glomerular filtration as a result of blood pressure
 - 2.7.2 tubular reabsorption and the processes of diffusion, osmosis and active transport
 - 2.7.3 tubular secretion
 - 2.7.4 concentration of urine, including considerations for the movement of ions, permeability of the tubule and role of ADH
- 2.8 describe the role of the kidney in the regulation of blood pressure by:
 - 2.8.1 identifying the hormones involved in regulating blood pressure
 - 2.8.2 creating a feedback diagram of the process that regulates blood pressure
- 2.9 describe the process of urination, including:
 - 2.9.1 stretch receptors
 - 2.9.2 voluntary and involuntary control
- 3. evaluate factors that contribute to the promotion and maintenance of a healthy urinary system**
 - 3.1 summarize the role of the urinary system in achieving and maintaining wellness
 - 3.2 explain the role of hydration
 - 3.3 summarize the basic effects of aging on the function of the urinary system
 - 3.4 predict the effect of lifestyle choices on the wellness of the urinary system, including choices related to cultural beliefs and practices
 - 3.5 recommend preventative lifestyle choices required for urinary wellness, including describing the relationship of:
 - 3.5.1 active living to urinary health
 - 3.5.2 proper nutrition to urinary health
- 4. explain the basic pathology and treatment of conditions related to the urinary system**
 - 4.1 summarize the signs and symptoms of common urinary conditions
 - 4.2 summarize causes of pathologies of the urinary system
 - 4.3 describe diagnostic procedures available for conditions of the urinary system
 - 4.4 summarize medical and integrative health treatments available for conditions of the urinary system
 - 4.5 summarize the role of dietary management for the treatment and management of various conditions of the urinary system
 - 4.6 describe the impact of pathologies of the urinary system on other body systems
 - 4.7 explain the social, emotional and economic impact of conditions of the urinary system on the individual, family, peers and community
 - 4.8 summarize community resources available for people living with urinary system pathologies
- 5. demonstrate basic competencies**
 - 5.1 demonstrate fundamental skills to:
 - 5.1.1 communicate
 - 5.1.2 manage information
 - 5.1.3 use numbers
 - 5.1.4 think and solve problems

- 5.2 demonstrate personal management skills to:
 - 5.2.1 demonstrate positive attitudes and behaviours
 - 5.2.2 be responsible
 - 5.2.3 be adaptable
 - 5.2.4 learn continuously
 - 5.2.5 work safely
- 5.3 demonstrate teamwork skills to:
 - 5.3.1 work with others
 - 5.3.2 participate in projects and tasks
- 6. identify possible life roles related to the skills and content of this cluster**
 - 6.1 recognize and then analyze the opportunities and barriers in the immediate environment
 - 6.2 identify potential resources to minimize barriers and maximize opportunities

COURSE HCS2100: INFECTION & IMMUNITY 3

Level: Intermediate

Prerequisite: HCS1110: Infection & Immunity 2

Description: Students acquire the attitudes, knowledge and skills related to the lymphatic system and the development of acquired immunity that are necessary for achieving and maintaining a healthy immune system. Students gain an appreciation for practising a healthy lifestyle as it pertains to the individual, family, peers and community.

Supporting Courses: HCS1080: Cardiovascular System
HCS2130: Chronic Conditions

Outcomes: The student will:

- 1. explain basic principles of immunity and the defence systems of the body**
 - 1.1 differentiate between innate immunity (non-specific immunity) and acquired immunity (specific immunity)
 - 1.2 differentiate between humoral immunity and cell-mediated immunity
 - 1.3 describe how acquired immunity is stimulated in the body, including:
 - 1.3.1 active natural immunity
 - 1.3.2 active artificial immunity
 - 1.3.3 passive natural immunity
 - 1.3.4 passive artificial immunity
 - 1.4 describe the mechanism producing an autoimmune response
- 2. explain the basic anatomy and functions of the lymphatic system**
 - 2.1 define common terms related to the lymphatic system and immunity using a list of prefixes, roots and suffixes
 - 2.2 name and locate the structural components of the lymphatic system, including the following:
 - 2.2.1 lymphatic vessels, including the right lymphatic duct and the thoracic duct
 - 2.2.2 diffuse lymphatic tissue
 - 2.2.3 lymph nodes, including cervical, axillary, tracheobronchial, mesenteric inguinal
 - 2.2.4 lymph nodules, including the lip and tonsils
 - 2.2.5 Peyer's Patches
 - 2.2.6 spleen
 - 2.2.7 thymus gland
 - 2.2.8 appendix
 - 2.3 summarize the functions of the lymphatic system, including:
 - 2.3.1 fluid balance
 - 2.3.2 protection from infection
 - 2.3.3 absorption of fats
 - 2.4 describe the structure and function of a lymph node
 - 2.5 describe the structure and functions of the spleen
 - 2.6 describe the function of the thymus gland
 - 2.7 compare the anatomy and function of the lymphatic system to the cardiovascular system, including a comparison of:
 - 2.7.1 movement between systems
 - 2.7.2 movement of fluids through the system
 - 2.7.3 the structure of vessels

- 2.8 compare the composition of lymph fluid to blood plasma
- 2.9 describe the function and structure of the reticuloendothelial system
- 3. **analyze the defensive mechanisms of the immune system related to acquired immunity**
 - 3.1 describe four types of T-cells: cytotoxic cells, helper T-cells, regulatory cells, memory T-cells
 - 3.2 compare the production, structure and function of T-cells, macrophages and B-cells
 - 3.3 justify the lymphatic system as a system with “memory”
 - 3.4 describe the formation of antibodies
 - 3.5 describe antigens and the purposes of the antigen–antibody relationship, including:
 - 3.5.1 prevention of attachment
 - 3.5.2 clumping of antigen
 - 3.5.3 neutralization of toxins
 - 3.5.4 help in phagocytosis
 - 3.5.5 activation of complement
 - 3.5.6 activation of NK cells
 - 3.6 describe how vaccines and immune sera stimulate immunity
 - 3.7 identify several historical and current bacterial and viral vaccines and immune sera
 - 3.8 analyze evidence-based research on the efficacy of vaccination programs
 - 3.9 analyze the steps in an allergic response, including:
 - 3.9.1 defining anaphylaxis
 - 3.9.2 recognizing signs and symptoms of allergic responses
- 4. **evaluate factors that contribute to the promotion and maintenance a healthy lymphatic system**
 - 4.1 summarize the role of the lymphatic system in achieving and maintaining wellness
 - 4.2 summarize the basic effects of aging on the function of the lymphatic system
 - 4.3 predict the effect of lifestyle choices on the health and wellness of the lymphatic system, including choices related to cultural beliefs and practices
 - 4.4 recommend preventative lifestyle choices required for a healthy lymphatic system, including describing the relationship of:
 - 4.4.1 active living to a healthy lymphatic system
 - 4.4.2 proper nutrition to a healthy lymphatic system
- 5. **explain the basic pathology and treatment of conditions of the lymphatic system**
 - 5.1 summarize the signs and symptoms of common conditions of the lymphatic system
 - 5.2 summarize causes of pathologies related to the lymphatic system, including results of an overstimulated and understimulated immune system
 - 5.3 describe the roles of the immune system related to cancer, including:
 - 5.3.1 prevention
 - 5.3.2 metastasis
 - 5.3.3 treatment
 - 5.4 describe diagnostic procedures available for conditions of the lymphatic system, including restrictions related to cultural beliefs and practices
 - 5.5 summarize medical and integrative health treatments available for conditions of the lymphatic system, including cultural beliefs and practices that influence decisions to obtain treatments
 - 5.6 summarize the role of dietary management for the treatment and management of various conditions of the lymphatic system
 - 5.7 describe the impact of pathologies of the lymphatic system on other body systems
 - 5.8 explain the social, emotional and economic impact of these conditions on the individual, family, peers and community
 - 5.9 summarize community resources available for people living with lymphatic system pathologies

6. demonstrate basic competencies

- 6.1 demonstrate fundamental skills to:
 - 6.1.1 communicate
 - 6.1.2 manage information
 - 6.1.3 use numbers
 - 6.1.4 think and solve problems
- 6.2 demonstrate personal management skills to:
 - 6.2.1 demonstrate positive attitudes and behaviours
 - 6.2.2 be responsible
 - 6.2.3 be adaptable
 - 6.2.4 learn continuously
 - 6.2.5 work safely
- 6.3 demonstrate teamwork skills to:
 - 6.3.1 work with others
 - 6.3.2 participate in projects and tasks

7. identify possible life roles related to the skills and content of this cluster

- 7.1 recognize and then analyze the opportunities and barriers in the immediate environment
- 7.2 identify potential resources to minimize barriers and maximize opportunities

COURSE HCS2120: PAIN & PAIN MANAGEMENT

Level: Intermediate

Prerequisite: HSS1010: Health Services Foundations

Description: Students examine the physiology of pain and the effects of unrelieved pain on the body systems and health and wellness of individuals. Students gain basic knowledge and skills related to the assessment and management of pain and the role of these strategies in promoting health and wellness in personal and health care contexts. Students gain an appreciation for the complexity of pain and the effects of pain on the individual, family, peers and community.

Supporting Courses: CCS1020: Back Care Basics
CCS2010: Health Care 1
CCS2040: Integrative Health
HCS2050: Nervous System & Senses
HCS2060: Endocrine System

Outcomes: The student will:

1. analyze basic mechanisms of pain

- 1.1 define common terms related to pain and pain management using a list of prefixes, roots and suffixes
- 1.2 compare definitions of pain and pain management, including:
 - 1.2.1 definitions of the International Association for the Study of Pain and American Pain Society
 - 1.2.2 common definitions of pain related to injury
 - 1.2.3 definitions of pain related to personal experience of pain
- 1.3 examine cultural beliefs about pain
- 1.4 differentiate pain from suffering
- 1.5 differentiate between acute, chronic non-malignant and cancer pain
- 1.6 identify factors affecting individual pain tolerance, including:
 - 1.6.1 competing sensory input
 - 1.6.2 the aging process
 - 1.6.3 expectations
 - 1.6.4 past experiences
 - 1.6.5 cultural factors
 - 1.6.6 general health, depression and fatigue
 - 1.6.7 prospects of a reward or accomplishment
- 1.7 differentiate between pain threshold and tolerance
- 1.8 categorize types of pain according to the origin of stimuli (neuropathic versus nociceptive), including:
 - 1.8.1 somatic pain
 - 1.8.2 visceral pain
 - 1.8.3 centrally generated pain
 - 1.8.4 peripherally generated pain
 - 1.8.5 expectation of duration
- 1.9 explain the anatomy and physiology of somatic and visceral sensations of pain, including:
 - 1.9.1 transduction
 - 1.9.2 transmission

- 1.9.3 perception
- 1.9.4 modulation
- 1.10 explain the physiology of referred pain
- 1.11 diagram a pain pathway
- 1.12 explain the anatomy and physiology of neuropathic pain
- 1.13 justify pain as the most important protective sense, including consideration of the following types of pain that signal a need for immediate medical attention:
 - 1.13.1 sudden severe headache
 - 1.13.2 chest pain
 - 1.13.3 severe abdominal pain
 - 1.13.4 eye injury or acute changes in vision
 - 1.13.5 joint swelling or pain following injury
 - 1.13.6 pelvic pain in women
 - 1.13.7 sudden, severe back pain with accompanying numbness or loss of bladder or bowel control
- 1.14 explain the action of endorphins
- 1.15 explain the possible harmful effects of unrelieved pain on the function of body systems, including:
 - 1.15.1 endocrine system
 - 1.15.2 metabolic effects
 - 1.15.3 cardiovascular system
 - 1.15.4 respiratory system
 - 1.15.5 genitourinary system
 - 1.15.6 digestive system
 - 1.15.7 musculoskeletal system
 - 1.15.8 cognitive processing
 - 1.15.9 immune system and sleep patterns
- 1.16 describe the possible harmful effects of unrelieved pain on:
 - 1.16.1 the physical, social and emotional growth and development of children
 - 1.16.2 behaviour and relationships with family, friends, health care providers and the community
 - 1.16.3 quality of life in the context of chronic illness and palliative care
 - 1.16.4 the future development of chronic pain syndromes after following medical procedures
 - 1.16.5 the work and activities of daily living

2. evaluate pain assessment strategies

- 2.1 justify assessment of pain as the fifth vital sign
- 2.2 state the purpose of pain-rating scales and their use
- 2.3 describe evidence-based misconceptions about pain that are a barrier to effective assessment techniques, including the following:
 - 2.3.1 the importance of clinical opinion versus patient opinion
 - 2.3.2 comparable stimuli produce comparable pain responses in people (thresholds and tolerance levels)
 - 2.3.3 people with low pain tolerances should make a greater effort to cope instead of seeking medication or more treatment
 - 2.3.4 absence of physical basis for pain indicates pain does not exist
 - 2.3.5 pain should not be treated until the cause is established
 - 2.3.6 visible signs of pain, either physiological or behavioural, verify the existence and severity of pain
 - 2.3.7 anxiety or depression causes pain or makes pain worse

- 2.3.8 all people who make regular attempts to obtain medication for pain are addicted to the medication
- 2.3.9 infants and small children do not experience pain or remember pain
- 2.4 identify words often used to describe pain, including:
 - 2.4.1 how the pain feels
 - 2.4.2 how the pain acts
 - 2.4.3 emotional and physical responses
- 2.5 identify nonverbal behaviours that indicate the presence of pain, including:
 - 2.5.1 vocalizations
 - 2.5.2 facial expressions
 - 2.5.3 bracing
 - 2.5.4 restlessness
 - 2.5.5 protecting an area of the body
 - 2.5.6 self-soothing movements
- 2.6 describe personal and societal beliefs about pain and the control of pain, including beliefs influenced by cultural considerations
- 2.7 apply the Initial Pain Assessment tool in the context of case studies and role-play
- 2.8 apply the Brief Pain Inventory tool in the context of case studies and role-play
- 2.9 apply pain-rating scales in the context of case studies and role-play
- 3. analyze pain management strategies for the effective control and relief of pain**
 - 3.1 compare the appropriate application of cutaneous stimulation for pain management, including the safe, effective and appropriate use of:
 - 3.1.1 heat
 - 3.1.2 cold
 - 3.1.3 vibration and superficial massage
 - 3.2 compare the pain mechanisms affected by acetaminophen, non-steroidal anti-inflammatory drugs (NSAIDs), and opioid medication
 - 3.3 justify the need for prescription for opioid medication
 - 3.4 analyze various complementary and alternative medicine approaches to pain
 - 3.5 explain the role of mental and spiritual health in relation to pain management, including the role of distraction and relaxation techniques
 - 3.6 describe humour as a pain management strategy
 - 3.7 explain the role of sleep in pain management
- 4. explain the pathology and management strategies for headaches and back pain**
 - 4.1 differentiate between primary and secondary headaches
 - 4.2 compare common causes of low back pain, neck pain and other back pain
 - 4.3 describe four common types of headaches, including causes and symptoms of:
 - 4.3.1 tension headaches
 - 4.3.2 migraine headaches, including a list of common migraine triggers
 - 4.3.3 cluster headaches
 - 4.3.4 sinus headaches
 - 4.4 outline strategies for managing headache pain for the types of common headaches, including:
 - 4.4.1 summarizing rebound headaches or daily headache syndromes
 - 4.4.2 outlining methods to treat tension headaches
 - 4.4.3 outlining strategies to manage migraine headaches
 - 4.4.4 outlining strategies to treat cluster headaches
 - 4.4.5 outlining strategies to treat sinus headaches
 - 4.5 recommend strategies to manage back pain
 - 4.6 list signs and symptoms of a headache or back pain that indicate the need for immediate medical attention

- 4.7 recommend strategies to prevent the occurrence of headaches
- 4.8 list considerations for preventative back care
- 5. demonstrate basic competencies**
 - 5.1 demonstrate fundamental skills to:
 - 5.1.1 communicate
 - 5.1.2 manage information
 - 5.1.3 use numbers
 - 5.1.4 think and solve problems
 - 5.2 demonstrate personal management skills to:
 - 5.2.1 demonstrate positive attitudes and behaviours
 - 5.2.2 be responsible
 - 5.2.3 be adaptable
 - 5.2.4 learn continuously
 - 5.2.5 work safely
 - 5.3 demonstrate teamwork skills to:
 - 5.3.1 work with others
 - 5.3.2 participate in projects and tasks
- 6. identify possible life roles related to the skills and content of this cluster**
 - 6.1 recognize and then analyze the opportunities and barriers in the immediate environment
 - 6.2 identify potential resources to minimize barriers and maximize opportunities

COURSE HCS2130: CHRONIC CONDITIONS

Level: Intermediate

Prerequisite: HSS1010: Health Services Foundations

Description: Students examine the physiological development of noncancerous chronic illness and chronic conditions and determine specific strategies to prevent chronic illness. Students develop awareness for the complexity of noncancerous chronic conditions and their prevalence in society through a comparative study of several noncancerous chronic conditions. Students consider the self-management model and explore resources available to help individuals manage noncancerous chronic conditions and assist their family, peers and community.

Supporting Courses: CCS2040: Integrative Health
HCS2100: Infection & Immunity 3
HCS2120: Pain & Pain Management
HSS1020: Nutrition & Wellness

Outcomes: The student will:

1. explain basic principles related to the development of chronic conditions

- 1.1 differentiate acute illness from chronic illness based on:
 - 1.1.1 rapid versus gradual onset
 - 1.1.2 one cause versus many causes
 - 1.1.3 short duration versus indefinite duration
 - 1.1.4 accurate early diagnosis versus early diagnostic uncertainty
 - 1.1.5 decisiveness of diagnostic tests
 - 1.1.6 cure is common versus rare
 - 1.1.7 role of professional in management of health care plan
 - 1.1.8 role of patient in management of health care plan
- 1.2 differentiate between a chronic illness and a chronic condition
- 1.3 justify cellular dysfunction as the root of chronic disease resulting from compromise to the cellular ability to:
 - 1.3.1 be nourished
 - 1.3.2 receive oxygen
 - 1.3.3 eliminate toxins and waste
- 1.4 illustrate the cycle of events that cause disease in a body system and lead to chronic conditions as a result of inability to relieve symptoms, considering the following:
 - 1.4.1 cellular dysfunction leads to disease in a body system
 - 1.4.2 unrelieved symptoms lead to pain or compromised movement, breathing or nutrition
 - 1.4.3 pain leads to stress, anxiety and other emotions
 - 1.4.4 stress and anxiety lead to depression
 - 1.4.5 depression leads to fatigue
 - 1.4.6 fatigue causes cellular dysfunction

- 1.5 summarize trends related to the incidence of chronic illness by:
 - 1.5.1 comparing the prevalence of chronic conditions among the 10 most common causes of death in Canada, North America and other countries
 - 1.5.2 identifying trends related to age of onset for at least five common chronic conditions
 - 1.5.3 outlining possible causes of changing trends related to chronic conditions
- 1.6 summarize risk factors that contribute to the development of chronic illness, including factors:
 - 1.6.1 that compromise cellular nutrition
 - 1.6.2 that compromise cellular access to oxygen
 - 1.6.3 that compromise cellular ability to eliminate toxins and waste
 - 1.6.4 related to infection and immunity
 - 1.6.5 related to stress and lifestyle choices
 - 1.6.6 related to body composition
 - 1.6.7 related to repetitive movements resulting from work or recreation
 - 1.6.8 related to healthy aging
 - 1.6.9 related to genetics
 - 1.6.10 related to cultural beliefs and practices
- 1.7 recommend lifestyle choices to prevent the development of chronic diseases and/or conditions, including justifying the relationship of:
 - 1.7.1 active living and physical activity to the prevention of chronic conditions
 - 1.7.2 proper nutrition to the prevention of chronic conditions
- 1.8 explain how monitoring symptoms during physical activity helps prevent chronic conditions
- 1.9 describe the role of blood test indicators, such as cholesterol and blood glucose, in preventing and managing chronic conditions
- 2. explain the significance of the inflammatory response to the development of chronic disease**
 - 2.1 define inflammation
 - 2.2 differentiate between acute inflammation and chronic inflammation
 - 2.3 describe the role of stress in the development of chronic inflammation
 - 2.4 identify blood test indicators of inflammation, such as C-Reactive Protein (CRP)
 - 2.5 describe genetic predisposition to chronic illness, such as genetics related to inflammation
 - 2.6 summarize risk factors associated with chronic inflammation in the each of the body systems
 - 2.7 compare risk factors related to chronic conditions and chronic inflammation
- 3. explain the basic pathology and treatment of common noncancerous chronic conditions**
 - 3.1 summarize the signs and symptoms of common chronic conditions, including:
 - 3.1.1 conditions related to repetitive movement, athletic activity and strenuous physical activity
 - 3.1.2 chronic diseases common in childhood
 - 3.1.3 rheumatoid arthritis
 - 3.1.4 osteoarthritis
 - 3.1.5 diabetes (type 1)
 - 3.1.6 diabetes (type 2)
 - 3.1.7 osteoporosis
 - 3.1.8 heart disease and hypertension
 - 3.1.9 stroke
 - 3.1.10 chronic obstructive pulmonary disease
 - 3.2 describe diagnostic procedures available for chronic conditions
 - 3.3 summarize medical and integrative health treatments available for chronic conditions, including cultural considerations related to treatment
 - 3.4 summarize the role of dietary management for the treatment and management of various chronic conditions

- 3.5 describe the impact of chronic illness in one body system to the healthy functioning of other body systems
- 3.6 explain the social, emotional and economic impact of chronic conditions on the individual, family, peers and community
- 3.7 summarize community and information resources available for people living with chronic diseases and conditions
- 3.8 summarize community and information resources available for friends and family of people living with a chronic condition
- 4. explain strategies for implementing a self-management program for individuals experiencing a chronic condition**
 - 4.1 identify categories of information on prescription labels
 - 4.2 compare the prevalence of problems related to several chronic conditions that require self-management skills, including:
 - 4.2.1 pain
 - 4.2.2 fatigue
 - 4.2.3 shortness of breath
 - 4.2.4 physical function
 - 4.2.5 difficult emotions
 - 4.3 describe the illness path
 - 4.4 categorize skills needed to manage a chronic illness into the following three categories:
 - 4.4.1 skills needed to manage a specific illness
 - 4.4.2 skills needed to continue activities of daily living
 - 4.4.3 skills needed to manage changing emotions
 - 4.5 summarize the roles of health care professionals and community care workers in the development and maintenance of self-management programs for people living with a chronic condition, including their role in supporting the following:
 - 4.5.1 setting goals and problem solving
 - 4.5.2 developing and maintaining an exercise program
 - 4.5.3 managing difficult emotions
 - 4.5.4 learning to manage fatigue and pain
 - 4.5.5 accessing dietary counselling
 - 4.5.6 developing personal directives
 - 4.5.7 developing a positive partnership with health care professionals
 - 4.5.8 communicating with family and friends
 - 4.5.9 managing symptoms of specific diseases and conditions
- 5. demonstrate basic competencies**
 - 5.1 demonstrate fundamental skills to:
 - 5.1.1 communicate
 - 5.1.2 manage information
 - 5.1.3 use numbers
 - 5.1.4 think and solve problems
 - 5.2 demonstrate personal management skills to:
 - 5.2.1 demonstrate positive attitudes and behaviours
 - 5.2.2 be responsible
 - 5.2.3 be adaptable
 - 5.2.4 learn continuously
 - 5.2.5 work safely

5.3 demonstrate teamwork skills to:

5.3.1 work with others

5.3.2 participate in projects and tasks

6. identify possible life roles related to the skills and content of this cluster

6.1 recognize and then analyze the opportunities and barriers in the immediate environment

6.2 identify potential resources to minimize barriers and maximize opportunities

COURSE HCS2910: HCS PROJECT B

Level: Intermediate

Prerequisite: None

Description: Students develop project design and management skills to extend and enhance competencies and skills in other CTS courses through contexts that are personally relevant.

Parameters: Intermediate project courses must connect with a minimum of two CTS courses, one of which must be at the intermediate level and be in the same occupational area as the project course. The other CTS course(s) can be at any level from any occupational area.

Project courses cannot be connected to other project courses or practicum courses.

All projects and/or performances, whether teacher- or student-led, must include a course outline or student proposal.

Outcomes:

The teacher/student will:

- 1. identify the connection between this project course and two or more CTS courses**
 - 1.1 identify the outcome(s) from each identified CTS course that support the project and/or performance deliverables
 - 1.2 explain how these outcomes are being connected to the project and/or performance deliverables
- 2. propose the project and/or performance**
 - 2.1 identify the project and/or performance by:
 - 2.1.1 preparing a plan
 - 2.1.2 clarifying the purposes
 - 2.1.3 defining the deliverables
 - 2.1.4 specifying time lines
 - 2.1.5 explaining terminology, tools and processes
 - 2.1.6 defining resources; e.g., materials, costs, staffing
 - 2.2 identify and comply with all related health and safety standards
 - 2.3 define assessment standards (indicators for success)
 - 2.4 present the proposal and obtain necessary approvals

The student will:

- 3. meet goals as defined within the plan**
 - 3.1 complete the project and/or performance as outlined
 - 3.2 monitor the project and/or performance and make necessary adjustments
 - 3.3 present the project and/or performance, indicating the:
 - 3.3.1 outcomes attained
 - 3.3.2 relationship of outcomes to goals originally set

- 3.4 evaluate the project and/or performance, indicating the:
 - 3.4.1 processes and strategies used
 - 3.4.2 recommendations on how the project and/or performance could have been improved
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. identify possible life roles related to the skills and content of this cluster**
 - 5.1 recognize and then analyze the opportunities and barriers in the immediate environment
 - 5.2 identify potential resources to minimize barriers and maximize opportunities

COURSE HCS2920: HCS PROJECT C

Level: Intermediate

Prerequisite: None

Description: Students develop project design and management skills to extend and enhance competencies and skills in other CTS courses through contexts that are personally relevant.

Parameters: Intermediate project courses must connect with a minimum of two CTS courses, one of which must be at the intermediate level and be in the same occupational area as the project course. The other CTS course(s) can be at any level from any occupational area.

Project courses cannot be connected to other project courses or practicum courses.

All projects and/or performances, whether teacher- or student-led, must include a course outline or student proposal.

Outcomes:

The teacher/student will:

- 1. identify the connection between this project course and two or more CTS courses**
 - 1.1 identify the outcome(s) from each identified CTS course that support the project and/or performance deliverables
 - 1.2 explain how these outcomes are being connected to the project and/or performance deliverables
- 2. propose the project and/or performance**
 - 2.1 identify the project and/or performance by:
 - 2.1.1 preparing a plan
 - 2.1.2 clarifying the purposes
 - 2.1.3 defining the deliverables
 - 2.1.4 specifying time lines
 - 2.1.5 explaining terminology, tools and processes
 - 2.1.6 defining resources; e.g., materials, costs, staffing
 - 2.2 identify and comply with all related health and safety standards
 - 2.3 define assessment standards (indicators for success)
 - 2.4 present the proposal and obtain necessary approvals

The student will:

- 3. meet goals as defined within the plan**
 - 3.1 complete the project and/or performance as outlined
 - 3.2 monitor the project and/or performance and make necessary adjustments
 - 3.3 present the project and/or performance, indicating the:
 - 3.3.1 outcomes attained
 - 3.3.2 relationship of outcomes to goals originally set

- 3.4 evaluate the project and/or performance, indicating the:
 - 3.4.1 processes and strategies used
 - 3.4.2 recommendations on how the project and/or performance could have been improved
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. identify possible life roles related to the skills and content of this cluster**
 - 5.1 recognize and then analyze the opportunities and barriers in the immediate environment
 - 5.2 identify potential resources to minimize barriers and maximize opportunities

COURSE HCS2950: HCS INTERMEDIATE PRACTICUM

Level: Intermediate

Prerequisite: None

Description: Students apply prior learning and demonstrate the attitudes, skills and knowledge required by an external organization to achieve a credential/credentials or an articulation.

Parameters: This practicum course, which may be delivered on- or off-campus, should be accessed only by students continuing to work toward attaining a recognized credential/credentials or an articulation offered by an external organization. This course must be connected to at least one CTS course from the same occupational area and cannot be used in conjunction with any advanced (3XXX) level course. A practicum course cannot be delivered as a stand-alone course, cannot be combined with a CTS project course and cannot be used in conjunction with the Registered Apprenticeship Program or the Green Certificate Program.

Outcomes: The student will:

1. perform assigned tasks and responsibilities, as required by the organization granting the credential(s) or articulation

- 1.1 identify regulations and regulatory bodies related to the credential(s) or articulation
- 1.2 describe personal roles and responsibilities, including:
 - 1.2.1 key responsibilities
 - 1.2.2 support functions/responsibilities/expectations
 - 1.2.3 code of ethics and/or conduct
- 1.3 describe personal work responsibilities and categorize them as:
 - 1.3.1 routine tasks; e.g., daily, weekly, monthly, yearly
 - 1.3.2 non-routine tasks; e.g., emergencies
 - 1.3.3 tasks requiring personal judgement
 - 1.3.4 tasks requiring approval of a supervisor
- 1.4 demonstrate basic employability skills and perform assigned tasks and responsibilities related to the credential(s) or articulation

2. analyze personal performance in relation to established standards

- 2.1 evaluate application of the attitudes, skills and knowledge developed in related CTS courses
- 2.2 evaluate standards of performance in terms of:
 - 2.2.1 quality of work
 - 2.2.2 quantity of work
- 2.3 evaluate adherence to workplace legislation related to health and safety
- 2.4 evaluate the performance requirements of an individual who is trained, experienced and employed in a related occupation in terms of:
 - 2.4.1 training and certification
 - 2.4.2 interpersonal skills
 - 2.4.3 technical skills
 - 2.4.4 ethics

3. demonstrate basic competencies

- 3.1 demonstrate fundamental skills to:
 - 3.1.1 communicate
 - 3.1.2 manage information
 - 3.1.3 use numbers
 - 3.1.4 think and solve problems
- 3.2 demonstrate personal management skills to:
 - 3.2.1 demonstrate positive attitudes and behaviours
 - 3.2.2 be responsible
 - 3.2.3 be adaptable
 - 3.2.4 learn continuously
 - 3.2.5 work safely
- 3.3 demonstrate teamwork skills to:
 - 3.3.1 work with others
 - 3.3.2 participate in projects and tasks

4. identify possible life roles related to the skills and content of this cluster

- 4.1 recognize and then analyze the opportunities and barriers in the immediate environment
- 4.2 identify potential resources to minimize barriers and maximize opportunities

COURSE HCS3000: WORKPLACE SAFETY SYSTEMS

Level: Advanced

Prerequisite: None

Description: Students gain the attitudes, knowledge and skills related to workplace health and safety and examine relevant legislation required in the workplace.

Parameters: Access to appropriate classroom and experiential learning opportunities, including contact with individuals with cluster specific credentials, career practitioners and relevant employers having current health and safety knowledge and experience; e.g., Certificate of Recognition (COR).

Note: This course is also the prerequisite course for all off-campus learning experiences.

Other Resources: [Alberta Jobs, Skills, Training and Labour: Resources for the Classroom](#)

Outcomes: The student will:

1. describe and explain workplace health and safety management systems

- 1.1 identify and describe the following eight elements of a health and safety management system:
 - 1.1.1 management, leadership and organizational commitment
 - 1.1.2 hazard identification and assessment
 - 1.1.3 hazard control
 - 1.1.4 ongoing inspections
 - 1.1.5 qualifications, orientations and employee training
 - 1.1.6 emergency response
 - 1.1.7 incident reporting and investigations
 - 1.1.8 health and safety management system administration
- 1.2 explain the workplace health and safety implications of each of the elements
- 1.3 identify, in samples taken from specific worksites or workstations, elements of health and safety management systems

2. recognize and incorporate hazard identification, assessment and control

- 2.1 predict and list hazards within a work environment particular to a variety of worksite/workstation locations; e.g., office, retail, restaurant; theatre, TV studio, film location; child care, health centre, fitness centre; construction, warehousing, manufacturing; oil well site, forestry lease, mine
- 2.2 distinguish between the five types of hazards; e.g., chemical, physical, ergonomic, biological, psychosocial) and provide examples of each from home, school or work
- 2.3 explore types of hazards commonly found in a specific occupational area or workplace
- 2.4 explain and apply terms related to hazard identification, assessment and control; e.g., hazard, risk, exposure, incident, injury, monitor
- 2.5 differentiate between hazard and risk
- 2.6 demonstrate ability to communicate information appropriately about a hazard and hazard prevention practices to others; e.g., fellow students or workers, other employees, supervisor, teacher, parent, employer
- 2.7 predict potential consequences of hazards left unattended
- 2.8 apply the progressive steps in a prevention strategy; e.g., hazard, exposure, incident, injury
- 2.9 develop a plan to control potential hazards identified in a selected workplace

- 3. identify and incorporate legislation related to the workplace**
 - 3.1 research and summarize workplace legislation particular to a worksite/workstation, including:
 - 3.1.1 *Occupational Health and Safety (OHS) Act, Regulation and Code*
 - 3.1.2 *Workers' Compensation Act*
 - 3.1.3 *Employment Standards Code*
 - 3.2 develop a glossary of relevant workplace terms; e.g., employer, worker, contractor, joint health and safety committee, responsibilities, hazard, personal protective equipment, fall protection, scaffolding, incident, investigation, muster point, Certificate of Recognition (COR), Partners in Injury Reduction (PIR)
 - 3.3 differentiate between the worker and employer
 - 3.4 explain responsibilities, as identified in OHS legislation
 - 3.5 describe the responsibilities of employers and workers
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE HCS3010: WORKPLACE SAFETY PRACTICES

Level: Advanced

Prerequisite: HCS3000: Workplace Safety Systems

Description: Students explore workplace safety principles and practices, and apply these principles and practices to a variety of contexts.

Parameters: Access to a materials work centre and to instruction from an individual with specialized training in worksite/workstation safety.

Note: This course is recommended for the Registered Apprenticeship Program.

Other Resources: [Alberta Jobs, Skills, Training and Labour: Resources for the Classroom](#)

Outcomes: The student will:

- 1. define and explain the differences between accidents and incidents and explain causation**
- 2. describe the principles and practices of workplace health and safety related to:**
 - 2.1 hazard identification for physical, chemical, biological, psychosocial and ergonomic factors
 - 2.2 hazard assessment, including task- or job-hazard analysis and/or process analysis
 - 2.3 hazard controls, including elimination, engineering, administrative, personal protective equipment (PPE) or a combination of more than one control
- 3. demonstrate an understanding of standards/legislated practices associated with workplace safety**
 - 3.1 demonstrate an understanding of standards/legislated practices associated with fire safety by:
 - 3.1.1 examining and justifying the need for fire safety legislation/standards
 - 3.1.2 identifying the fire classifications and comparing the appropriate extinguishers
 - 3.1.3 analyzing and discussing the elements of fire
 - 3.1.4 developing a plan to safely address potential fire hazards and identifying fire prevention methods
 - 3.1.5 demonstrating the use of portable fire extinguishers
 - 3.2 demonstrate an understanding of standards/legislated practices associated with electrical safety by:
 - 3.2.1 investigating potential electrical hazards at home, at school and in the workplace
 - 3.2.2 developing a plan to safely address potential electrical hazards found in the home, at school and in the workplace
 - 3.2.3 creating a personal strategy for establishing safe work conditions when working with electricity
 - 3.2.4 explaining lockout/tagout procedures on electrical equipment
 - 3.3 demonstrate an understanding of standards/legislated practices associated with ladder safety by:
 - 3.3.1 identifying and differentiating what and when different types of ladders should be used
 - 3.3.2 demonstrating the safe setup and use of ladders
 - 3.3.3 identifying and demonstrating the proper inspection, care and storage of ladders
 - 3.3.4 diagramming ladder safety rules

- 3.4 demonstrate an understanding of standards/legislated practices associated with confined space safety by:
 - 3.4.1 examining and justifying the need for confined space legislation and standards
 - 3.4.2 identifying and analyzing what constitutes a confined space and the associated dangers
 - 3.4.3 identifying what tests should be completed before entering that confined space (depending on the potential hazards of a given confined space)
 - 3.4.4 creating a plan to be used before entering a given confined space
 - 3.4.5 discussing the need for a rescue plan; e.g., what should be included and what training should rescuers have (and why)
- 3.5 demonstrate an understanding of standards/legislated practices associated with workplace chemical health and safety by:
 - 3.5.1 examining and justifying the need for WHMIS legislation
 - 3.5.2 identifying the classes of WHMIS-controlled products
 - 3.5.3 describing the role of labels on containers of controlled products, and the type of information that would be found on the labels
 - 3.5.4 describing the role of material safety data sheets, and the type of information that would be found on them
 - 3.5.5 explaining the responsibilities of suppliers, employers and workers when it comes to the safe handling of chemicals in the workplace
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE HCS3020: FIRST RESPONDER 1

Level: Advanced

Prerequisites: HCS2020: First Aid/CPR with AED
HSS1010: Health Services Foundations

Description: Students study and demonstrate complex first-aid skills and procedures, including cardiopulmonary resuscitation (CPR) at the health care provider level. Students acquire complex techniques for sustaining life, preventing further injuries, and caring for illnesses and injuries until the next level of medical personnel arrives at an emergency scene.

Parameters: Access to instruction from an individual with a current, recognized instructor's certificate for health care provider (HCP) first aid with CPR with AED is required.

Note: Successful completion of this course enables students to apply for certification in health care provider CPR/AED or enhanced standard first aid when they meet the competencies and requirements specified by an approved credentialing agency; e.g., St. John Ambulance or Canadian Red Cross. An approved agency list is available from the Director of Medical Services at [Alberta Jobs, Skills, Training and Labour: First Aid Agencies](#).

Outcomes: The student will:

1. analyze the roles and responsibilities of a first responder

- 1.1 describe the role of the first responder as a member of the emergency medical system (EMS), including limitations concerning medical control
- 1.2 identify the components of an emergency response supporting the EMS
- 1.3 describe the following six primary responsibilities of a first responder:
 - 1.3.1 ensure personal safety and safety of bystanders
 - 1.3.2 gain access to injured or ill person
 - 1.3.3 determine threats to person's life
 - 1.3.4 obtain more advanced medical care, as needed
 - 1.3.5 provide care for the injured or ill person
 - 1.3.6 assist more advanced personnel at the scene
- 1.4 describe the following secondary responsibilities of a first responder:
 - 1.4.1 summon additional help, when needed
 - 1.4.2 control or direct bystanders
 - 1.4.3 take additional steps to protect bystanders from danger
 - 1.4.4 record what was seen, heard and done
 - 1.4.5 reassure the injured or ill person's family and/or friends
- 1.5 assess personal characteristics relevant to the role of first responder
- 1.6 demonstrate effective interpersonal communication skills for managing medical emergencies

- 1.7 summarize the legal and ethical issues concerning emergency care, including:
 - 1.7.1 duty to act
 - 1.7.2 consent
 - 1.7.3 competence
 - 1.7.4 negligence
 - 1.7.5 laws that protect responders
 - 1.7.6 refusal of care
 - 1.7.7 abandonment
 - 1.7.8 confidentiality
 - 1.7.9 documentation
- 1.8 identify the contents of a first-aid or trauma kit appropriate for a specific local setting
- 1.9 demonstrate appropriate response to emergency situations using a plan of action
- 1.10 explain responsibilities for managing dangers at an emergency scene, considering:
 - 1.10.1 personal safety
 - 1.10.2 potential hazards
 - 1.10.3 safety of others
- 1.11 demonstrate safety precautions to prevent disease transmission in first-aid scenarios, including:
 - 1.11.1 summarizing the components of an exposure control plan
 - 1.11.2 demonstrating strategies for immediate first aid and reporting following an exposure
- 1.12 describe Critical Incident Stress Management
- 2. demonstrate a basic understanding of normal human anatomical structure and function**
 - 2.1 define key anatomical and directional terms required to describe injuries
 - 2.2 identify the five major body cavities
 - 2.3 describe the major structures and primary functions of the following body systems:
 - 2.3.1 respiratory
 - 2.3.2 circulatory
 - 2.3.3 nervous
 - 2.3.4 musculoskeletal
 - 2.3.5 integumentary
 - 2.3.6 endocrine
 - 2.3.7 digestive
 - 2.3.8 genitourinary (reproductive and urinary)
- 3. demonstrate advanced assessment skills**
 - 3.1 perform a scene survey, with guidance and cueing, to establish priorities of care
 - 3.2 perform a primary survey of injured or ill persons, including:
 - 3.2.1 demonstrating strategies to assess CABC (chest compressions, airway, breathing, circulation) and to do a head-to-toe check
 - 3.2.2 justifying the importance of assessing CABC
 - 3.2.3 justifying the importance of assessing head-to-toe
 - 3.3 perform a basic secondary survey, with guidance and cueing
 - 3.4 describe when to obtain more advanced medical care
 - 3.5 explain how vital signs can be used as a measure of a person's condition, including:
 - 3.5.1 blood pressure
 - 3.5.2 breathing rate, rhythm and quality
 - 3.5.3 pulse rate, rhythm and quality
 - 3.5.4 pupil response
 - 3.5.5 skin colour and condition

- 3.6 explain how to assess level of consciousness using:
 - 3.6.1 AVPU standard of practice (alert and oriented, responsive to verbal stimulus, responsive to painful stimulus, unresponsive)
 - 3.6.2 the Glasgow Coma Scale
- 4. demonstrate advanced respiratory emergency skills for adults, children and infants**
 - 4.1 identify causes, signs and symptoms of choking and common breathing emergencies
 - 4.2 recommend strategies to prevent choking
 - 4.3 demonstrate procedures for airway and respiratory emergencies, including rescue breathing and bag-valve-mask protocol
 - 4.4 explain the benefits of using a resuscitation or bag-valve-mask device
 - 4.5 explain the benefits of using of supplemental oxygen
 - 4.6 describe the advantages of different types of oxygen delivery devices, including:
 - 4.6.1 nasal canula
 - 4.6.2 simple face masks
 - 4.6.3 non re-breather masks
 - 4.6.4 bag-valve-masks
- 5. demonstrate advanced circulatory emergency skills for adults, children and infants**
 - 5.1 identify causes, signs and symptoms of common circulation emergencies, including deadly bleeding (internal and external)
 - 5.2 recommend strategies to prevent:
 - 5.2.1 cardiovascular disease
 - 5.2.2 stroke and transient ischemic attack
 - 5.3 demonstrate effective one-rescuer and two-rescuer cardiopulmonary resuscitation (CPR)
 - 5.4 demonstrate automated external defibrillator (AED) protocol
 - 5.5 describe the signs and symptoms of shock
 - 5.6 explain the importance of treating everyone at the scene for shock
- 6. demonstrate emergency injury management strategies for adults, children and infants**
 - 6.1 identify causes, signs, symptoms and prevention of emergency injuries and conditions, including:
 - 6.1.1 shock, unconsciousness and fainting
 - 6.1.2 airway emergencies
 - 6.1.3 breathing emergencies and choking
 - 6.1.4 internal bleeding and external wound care
 - 6.1.5 cardiovascular disease and related emergencies
 - 6.1.6 head, spinal and pelvic injuries
 - 6.1.7 bone and joint injuries, including muscle strains
 - 6.1.8 sudden medical conditions, such as diabetic emergencies and seizures
 - 6.1.9 heat- and cold-related emergencies
 - 6.2 demonstrate advanced first-aid procedures used to treat:
 - 6.2.1 shock, unconsciousness and fainting
 - 6.2.2 breathing emergencies and choking
 - 6.2.3 internal bleeding and external wound care
 - 6.2.4 cardiovascular disease and related emergencies
 - 6.2.5 head, spinal and pelvic injuries
 - 6.2.6 bone and joint injuries, including muscle strains
 - 6.2.7 sudden medical conditions, such as diabetic emergencies and seizures
 - 6.2.8 heat- and cold-related emergencies

7. demonstrate basic competencies

7.1 demonstrate fundamental skills to:

- 7.1.1 communicate
- 7.1.2 manage information
- 7.1.3 use numbers
- 7.1.4 think and solve problems

7.2 demonstrate personal management skills to:

- 7.2.1 demonstrate positive attitudes and behaviours
- 7.2.2 be responsible
- 7.2.3 be adaptable
- 7.2.4 learn continuously
- 7.2.5 work safely

7.3 demonstrate teamwork skills to:

- 7.3.1 work with others
- 7.3.2 participate in projects and tasks

8. create a transitional strategy to accommodate personal changes and build personal values

8.1 identify short-term and long-term goals

8.2 identify steps to achieve goals

COURSE HCS3030: FIRST RESPONDER 2

Level: Advanced

Prerequisites: HCS1080: Cardiovascular System
HCS3020: First Responder 1

Description: Students demonstrate complex first-aid skills and procedures, including techniques for sustaining life, preventing further injuries, and caring for illnesses and injuries until the next level of medical personnel arrives. Cardiopulmonary resuscitation (CPR) skills are applied to complex scenarios.

Parameters: Access to instruction from an individual with a current, recognized first responder instructor's certificate and the appropriate training, equipment and materials.

Note: Successful completion of this course enables students to apply for certification in first responder training or advanced medical first responder training when they meet the competencies and requirements specified by an approved credentialing agency; e.g., St. John Ambulance or Canadian Red Cross. An approved agency list is available from the Director of Medical Services at [Alberta Jobs, Skills, Training and Labour: First Aid Agencies](#).

Outcomes: The student will:

1. demonstrate the roles and responsibilities of a first responder

- 1.1 demonstrate effective interpersonal communication skills for managing medical emergencies
- 1.2 explain the legal and ethical issues concerning emergency care, including:
 - 1.2.1 duty to act
 - 1.2.2 consent
 - 1.2.3 competence
 - 1.2.4 negligence
 - 1.2.5 laws that protect responders
 - 1.2.6 refusal of care
 - 1.2.7 abandonment
 - 1.2.8 confidentiality
 - 1.2.9 documentation
- 1.3 demonstrate skills for managing hazards at the emergency scene, including:
 - 1.3.1 personal safety
 - 1.3.2 potential hazards
 - 1.3.3 safety of others
- 1.4 demonstrate safety precautions to prevent disease transmission in first-aid scenarios
- 1.5 explain Critical Incident Stress Management as a response to the emotional, physical and mental aspects of emergency response
- 1.6 evaluate the necessity for Critical Incident Stress Management

2. demonstrate advanced skills for emergency scene management (triage)

- 2.1 summarize considerations for safe transportation and arrival at an emergency scene
- 2.2 describe protocols for specific emergency situations, including those related to:
 - 2.2.1 crime scenes

- 2.2.2 drug labs
 - 2.2.3 traffic
 - 2.2.4 fire
 - 2.2.5 electricity
 - 2.2.6 water and ice
 - 2.2.7 hazardous materials
 - 2.2.8 unsafe structures
 - 2.2.9 wreckage
 - 2.2.10 natural disasters
 - 2.2.11 multiple people injuries
 - 2.2.12 hostile situations
 - 2.2.13 hostage situations
- 3. demonstrate advanced assessment skills**
- 3.1 demonstrate scene surveys independently to establish priorities of care
 - 3.2 evaluate when to obtain more advanced medical care
 - 3.3 demonstrate a primary survey of injured or ill persons, including:
 - 3.3.1 demonstrating strategies to assess CABC (chest compression, airway, breathing, circulation)
 - 3.3.2 justifying importance of assessing CABC
 - 3.3.3 demonstrating a head-to-toe check
 - 3.3.4 justifying importance of performing a head-to-toe check
 - 3.4 demonstrate the effective use of a blood-pressure cuff to determine blood pressure
 - 3.5 evaluate vital signs as a measure of a person's condition during secondary survey by assessing:
 - 3.5.1 level of consciousness using AVPU standard of practice (alert and oriented, responsive to verbal stimulus, responsive to painful stimulus, unresponsive)
 - 3.5.2 level of consciousness using the Glasgow Coma Scale
 - 3.5.3 breathing rate, rhythm and quality
 - 3.5.4 pulse rate, rhythm and quality
 - 3.5.5 skin characteristics
 - 3.5.6 pupils
 - 3.5.7 blood pressure
- 4. demonstrate advanced respiratory emergency skills for treating adults, children and infants**
- 4.1 demonstrate procedures for airway and respiratory emergencies, including rescue breathing and bag-valve-mask protocol
 - 4.2 explain the benefits of using a resuscitation or bag-valve-mask device
 - 4.3 demonstrate methods of suctioning the airway clear
 - 4.4 demonstrate the use of oropharyngeal airways (OPAs) in both adults and children
 - 4.5 demonstrate the safe delivery of supplemental oxygen by:
 - 4.5.1 demonstrating cylinder identification and safe handling
 - 4.5.2 demonstrating appropriate and safe application of oxygen regulator
 - 4.5.3 demonstrating the application of appropriate oxygen device
- 5. demonstrate advanced circulatory emergency skills for treating adults, children and infants**
- 5.1 demonstrate effective one-rescuer and two-rescuer CPR
 - 5.2 explain how an automated external defibrillator (AED) works, including the electrophysiology of the cardiac cycle
 - 5.3 demonstrate AED protocol
 - 5.4 demonstrate appropriate treatment and positioning for patients suffering from shock, including:
 - 5.4.1 oxygen administration
 - 5.4.2 shock position

6. demonstrate advanced first-aid procedures

- 6.1 demonstrate advanced first-aid procedures used to treat soft-tissue injuries
- 6.2 demonstrate advanced first-aid procedures used to treat musculoskeletal injuries (e.g., splinting)
- 6.3 demonstrate advanced first-aid procedures used to treat head and spine injuries, including:
 - 6.3.1 demonstrating techniques for minimizing movement in treating a head or spine injury
 - 6.3.2 demonstrating sizing and application of cervical collars
 - 6.3.3 demonstrating protocols for immobilizing an injured person using a variety of techniques, including using upper-body motion-restriction devices such as a short board or a full-length spine board, and using straps and head blocks
 - 6.3.4 explaining reasons why it might be necessary to move a person quickly using only one immobilization technique (rapid extrication)
 - 6.3.5 demonstrating procedures for a rapid extrication
 - 6.3.6 describing situations where it might be necessary to remove a helmet
 - 6.3.7 demonstrating techniques for removing a helmet to provide care
- 6.4 demonstrate advanced first-aid procedures to treat chest, abdominal and pelvic injuries
- 6.5 demonstrate advanced first-aid procedures to treat sudden illnesses
- 6.6 demonstrate advanced first-aid procedures to treat poisoning
- 6.7 demonstrate advanced first-aid procedures to treat heat- and cold-related emergencies

7. explain advanced first-aid skills for special populations and situations

- 7.1 explain the special needs and considerations of children, older adults and persons with mental or physical impairments in emergency situations
- 7.2 explain the birthing process
- 7.3 describe procedures for assisting with childbirth from delivery to post-delivery care
- 7.4 explain situations where it is necessary to move a person before treating him or her
- 7.5 explain procedures for managing multiple casualty accidents

8. demonstrate basic competencies

- 8.1 demonstrate fundamental skills to:
 - 8.1.1 communicate
 - 8.1.2 manage information
 - 8.1.3 use numbers
 - 8.1.4 think and solve problems
- 8.2 demonstrate personal management skills to:
 - 8.2.1 demonstrate positive attitudes and behaviours
 - 8.2.2 be responsible
 - 8.2.3 be adaptable
 - 8.2.4 learn continuously
 - 8.2.5 work safely
- 8.3 demonstrate teamwork skills to:
 - 8.3.1 work with others
 - 8.3.2 participate in projects and tasks

9. create a transitional strategy to accommodate personal changes and build personal values

- 9.1 identify short-term and long-term goals
- 9.2 identify steps to achieve goals

COURSE HCS3040: CHILD CARE FIRST AID

Level: Advanced

Prerequisite: None

Description: Students study and demonstrate first-aid skills and procedures, including cardiopulmonary resuscitation (CPR) and automated external defibrillator (AED), for dealing with emergency situations with emphasis on children and infants. Students identify a child safe environment and recognize and demonstrate skills and procedures for dealing with child and infant emergency situations and medical conditions.

Parameters: Access to instruction from an individual with a recognized first aid and first aid in child care/CPR instructor's certificate.

Note: Successful completion of this course enables students to apply for certification in first aid in child care or standard child care first aid and CPR when they meet the competencies and requirements specified by an approved credentialing agency; e.g., St. John Ambulance or Canadian Red Cross.

Supporting Course: HCS2020: First Aid/CPR with AED

Outcomes: The student will:

- 1. describe the roles and responsibilities of the first-aider for providing first aid for all individuals with separate emphasis on infants, children and adults**
 - 1.1 outline the objectives of first aid
 - 1.2 state the universal precautions in first aid, including routine precautions for disease transmission
 - 1.3 identify preparations for emergencies
 - 1.4 describe the legal implications of performing first aid in Alberta
 - 1.5 differentiate between life-threatening and non life-threatening emergencies
- 2. describe causes, signs and symptoms of emergency injuries and conditions for all individuals with separate emphasis on infants, children and adults**
 - 2.1 describe causes, signs and symptoms of the following emergency injuries and conditions:
 - 2.1.1 shock, unconsciousness and fainting
 - 2.1.2 breathing emergencies and choking
 - 2.1.3 internal bleeding and external wound care
 - 2.1.4 cardiovascular disease and related emergencies
 - 2.1.5 head spinal and pelvic injuries
 - 2.1.6 bone and joint injuries, including muscle strains
 - 2.1.7 sudden medical conditions, such as diabetic emergencies and seizures
 - 2.1.8 heat- and cold-related emergencies
 - 2.1.9 childhood illnesses and medical conditions
- 3. demonstrate first-aid procedures with separate emphasis on infants, children and adults**
 - 3.1 demonstrate first-aid procedures used for:
 - 3.1.1 shock, unconsciousness and fainting
 - 3.1.2 breathing emergencies, including:
 - 3.1.2.1 breathing emergencies for suspected head/spinal injuries

- 3.1.2.2 choking
 - 3.1.3 wound care, including:
 - 3.1.3.1 external wounds
 - 3.1.3.2 internal bleeding
 - 3.1.3.3 amputations and amputated tissue
 - 3.1.3.4 eye injuries; e.g., foreign bodies, penetrating/protruding objects
 - 3.1.3.5 chemical burns to the eyes and skin
 - 3.1.3.6 thermal injuries to the eyes and skin
 - 3.1.3.7 frostbite
 - 3.1.4 cardiovascular emergencies, including:
 - 3.1.4.1 angina and heart attack
 - 3.1.4.2 cardiac arrest
 - 3.1.4.3 stroke
 - 3.1.5 bone and joint injuries of upper and lower extremities and muscle strains
 - 3.1.6 head, spinal, and pelvic injuries, including:
 - 3.1.6.1 controlling bleeding from scalp and ears
 - 3.1.7 medical conditions, including:
 - 3.1.7.1 diabetic emergencies
 - 3.1.7.2 seizures
 - 3.1.7.3 asthmatic emergencies
 - 3.1.7.4 allergic reactions
 - 3.1.8 heat and cold emergencies, including:
 - 3.1.8.1 heat-related conditions; e.g., heat cramps, heat exhaustion, heat stroke
 - 3.1.8.2 cold-related conditions; e.g., hypothermia
 - 3.1.9 emergency-scene management
 - 3.1.10 life-threatening emergencies, including demonstrating the use of child resuscitation, one-person CPR, two-person CPR and an AED
 - 3.1.11 non-life-threatening emergencies
 - 3.1.12 providing ongoing care
- 4. describe how to meet the physical, emotional, psychological and social needs of all individuals involved in an emergency**
- 4.1 describe typical reactions
 - 4.2 describe barriers to action that may influence the actions of the first-aider
 - 4.3 identify available resources
- 5. identify practices that provide a safe environment with separate emphasis on infants, children and adults**
- 5.1 recommend safety practices:
 - 5.1.1 at home
 - 5.1.2 at school
 - 5.1.3 with motorized vehicles
 - 5.1.4 at play
- 6. demonstrate basic competencies**
- 6.1 demonstrate fundamental skills to:
 - 6.1.1 communicate
 - 6.1.2 manage information
 - 6.1.3 use numbers
 - 6.1.4 think and solve problems
 - 6.2 demonstrate personal management skills to:
 - 6.2.1 demonstrate positive attitudes and behaviours
 - 6.2.2 be responsible

- 6.2.3 be adaptable
- 6.2.4 learn continuously
- 6.2.5 work safely
- 6.3 demonstrate teamwork skills to:
 - 6.3.1 work with others
 - 6.3.2 participate in projects and tasks
- 7. create a transitional strategy to accommodate personal changes and build personal values**
 - 7.1 identify short-term and long-term goals
 - 7.2 identify steps to achieve goals

COURSE HCS3050: REPRODUCTION & READINESS FOR PARENTING

Level: Advanced

Prerequisite: HSS1010: Health Services Foundations

Description: Students acquire the knowledge and skills necessary for achieving and maintaining reproductive health. Students study basic genetic principles related to reproduction as well as pathologies related to the reproductive system. Students examine the benefits and challenges associated with parenthood and factors to assess readiness for parenting. Students gain an appreciation for practising a healthy lifestyle as it pertains to the individual, family, peers and community.

Parameters: This course requires notification under Section 11.1 of the *Alberta Human Rights Act*. Refer to Alberta Education's *Guide to Education: ECS to Grade 12* for board requirements.

Supporting Course: HCS3060: Pregnancy, Birth & Infant Care

Outcomes: The student will:

- 1. explain basic principles of reproduction related to genetics**
 - 1.1 differentiate mitosis from meiosis
 - 1.2 identify the functions of DNA and genes
 - 1.3 differentiate between dominant and recessive genes
 - 1.4 describe how gender is determined during conception
 - 1.5 differentiate between fraternal and identical twins
 - 1.6 differentiate between the causes of congenital and hereditary diseases
 - 1.7 summarize ways to prevent genetic damage related to reproduction
 - 1.8 summarize prenatal and post-natal counselling services for genetic conditions related to pregnancy and the newborn
 - 1.9 summarize diagnostic procedures and medical treatments for genetic conditions during pregnancy and for the newborn
- 2. explain the anatomy and function of the male reproductive system**
 - 2.1 define common medical terms related to the male reproductive system using a list of prefixes, roots and suffixes
 - 2.2 differentiate between primary and accessory organs of the male reproductive system
 - 2.3 name, locate and summarize the function of the organs and structures of the male reproductive system, including the formation and production of sperm
 - 2.4 explain the hormonal control of the male reproductive system
- 3. explain the anatomy and function of the female reproductive system**
 - 3.1 define common medical terms related to the female reproductive system using a list of prefixes, roots and suffixes
 - 3.2 differentiate between primary and accessory organs of the female reproductive system
 - 3.3 name, locate and summarize the function of the organs and structures of the female reproductive system
 - 3.4 explain the hormonal control of the female reproductive system, including menstruation, ovulation and menopause

- 4. evaluate factors that contribute to the promotion and maintenance of healthy male and female reproductive systems**
 - 4.1 summarize the roles of the male and female reproductive systems in achieving and maintaining wellness
 - 4.2 explain the effects of aging on the functions of the male and female reproductive systems
 - 4.3 predict the effects of lifestyle choices on the wellness of the male and female reproductive systems; e.g., cultural beliefs and practices, impact of reduction and/or augmentation surgeries, tobacco, alcohol, nutrition, stress
 - 4.4 recommend preventative lifestyle choices required for wellness of the male and female reproductive systems; e.g., self-examination routines, prevention of sexually transmitted infections
 - 4.5 describe methods of contraception for males and females
- 5. explain the basic pathology and treatment of conditions of male and female reproductive systems**
 - 5.1 describe the causes, signs and symptoms of pathologies of male and female reproductive systems; e.g., sexually transmitted infections
 - 5.2 describe preventative measures to ensure reproductive health; e.g., avoiding sexually transmitted infections
 - 5.3 summarize medical and integrative health treatments for conditions of the male and female reproductive systems
 - 5.4 explain the social, emotional and economic impact of conditions of the male and female reproductive systems on the individual, family, peers and community
- 6. evaluate considerations related to readiness for parenting**
 - 6.1 define parental readiness
 - 6.2 summarize considerations for parenting readiness, including:
 - 6.2.1 personal health
 - 6.2.2 financial position
 - 6.2.3 lifestyle
 - 6.2.4 support systems
 - 6.2.5 goals and expectations of parenthood
 - 6.2.6 cultural belief systems and practices
 - 6.3 describe societal, cultural, family and peer pressures to have children or remain childless
 - 6.4 describe options for parenting other than birth; e.g., adoption, foster care
 - 6.5 summarize community resources to help determine readiness for parenting
 - 6.6 summarize community resources to help parents develop and improve parenting skills throughout the family life cycle
- 7. demonstrate basic competencies**
 - 7.1 demonstrate fundamental skills to:
 - 7.1.1 communicate
 - 7.1.2 manage information
 - 7.1.3 use numbers
 - 7.1.4 think and solve problems
 - 7.2 demonstrate personal management skills to:
 - 7.2.1 demonstrate positive attitudes and behaviours
 - 7.2.2 be responsible
 - 7.2.3 be adaptable
 - 7.2.4 learn continuously
 - 7.2.5 work safely

- 7.3 demonstrate teamwork skills to:
 - 7.3.1 work with others
 - 7.3.2 participate in projects and tasks
- 8. create a transitional strategy to accommodate personal changes and build personal values**
 - 8.1 identify short-term and long-term goals
 - 8.2 identify steps to achieve goals

COURSE HCS3060: PREGNANCY, BIRTH & INFANT CARE

Level: Advanced

Prerequisite: None

Description: Students acquire the attitude, knowledge and skills necessary for achieving and maintaining a healthy pregnancy and parenting a healthy child in the first year of life. Students focus on the impact of pregnancy on the physical, mental and social well-being of the mother and newborn. Students examine the events of labour and delivery and the importance of post-natal care. Students gain an appreciation for practising a healthy lifestyle as it pertains to the individual, family, peers and community.

Outcomes: The student will:

1. evaluate basic principles for health and wellness related to the first trimester of pregnancy

- 1.1 identify signs of pregnancy, including how to confirm a pregnancy
- 1.2 compare the roles of an obstetrician, family doctor, certified midwife, doula and other professionals who assist with pregnancy, labour and delivery
- 1.3 evaluate considerations for selecting medical care for pregnancy and delivery, including considerations for cultural beliefs and practices
- 1.4 describe characteristics of the first medical exam
- 1.5 justify the importance of regular medical checkups
- 1.6 describe the development of the embryo during the first trimester of pregnancy
- 1.7 explain the structure and function of the placenta, including the umbilical cord and amniotic sac
- 1.8 summarize the roles of placental hormones during the pregnancy
- 1.9 describe physical and emotional changes during the first trimester, including expected weight gain
- 1.10 describe the emotional and social impacts of pregnancy on family, peers and community
- 1.11 describe the roles, rights and responsibilities of the father related to pregnancy, birth and delivery
- 1.12 predict the effects of lifestyle choices on the health and wellness of the mother and baby in the first trimester, including choices related to cultural beliefs and practices
- 1.13 recommend preventative lifestyle choices for the health and wellness of the mother and baby in the first trimester, including:
 - 1.13.1 nutrition and supplementation
 - 1.13.2 hydration
 - 1.13.3 activity and rest
 - 1.13.4 substances to avoid, including environmental factors
 - 1.13.5 strategies for managing morning sickness

2. explain healthy developmental stages for the second and third trimesters of pregnancy

- 2.1 differentiate between an embryo and a fetus
- 2.2 describe developmental changes to the fetus for each month in the second and third trimesters
- 2.3 describe physical and emotional changes for the mother in the second and third trimesters, including expected weight gain
- 2.4 describe the emotional and social impacts of pregnancy on family, peers and community

- 2.5 predict the effects of lifestyle choices on the health and wellness of the mother and baby in the second and third trimesters, including choices related to cultural beliefs and practices
- 2.6 recommend preventative lifestyle choices for the health and wellness of the mother and baby in the second and third trimesters, including:
 - 2.6.1 nutrition and supplementation
 - 2.6.2 hydration
 - 2.6.3 activity and rest
 - 2.6.4 substances to avoid, including environmental factors
- 3. evaluate strategies to prepare for a healthy birth and postpartum care**
 - 3.1 describe the purpose of childbirth classes
 - 3.2 evaluate the decisions required to develop a birth plan
 - 3.3 compare breastfeeding to bottle feeding, including consideration for cultural beliefs and practices
 - 3.4 describe considerations to prepare for the care of a baby at home
- 4. explain events that occur during the stages of healthy labour and delivery**
 - 4.1 describe fetal and maternal factors that work together to start the process of labour
 - 4.2 identify the signs and symptoms of labour
 - 4.3 differentiate between the four stages of parturition
 - 4.4 describe strategies to care for the mother during each of the four stages of parturition, including considerations related to cultural beliefs and practices
 - 4.5 describe the physical and psychoemotional needs and adaptations of the mother and baby immediately following birth
- 5. describe possible complications related to pregnancy, labour, delivery and postpartum care**
 - 5.1 describe risk factors associated with pregnancy, including the signs and symptoms of a miscarriage
 - 5.2 identify common complications of pregnancy, labour and delivery
 - 5.3 describe diagnostic procedures throughout pregnancy and during labour and delivery
 - 5.4 summarize the spectrum of postpartum mood disorders (from baby blues to postpartum psychosis)
- 6. demonstrate strategies that promote health and wellness throughout a baby's first year**
 - 6.1 outline family and community resources to support child care during the first year
 - 6.2 describe expectations for a baby's physical development through the first year; e.g., changes in height and weight, motor skills, development of teeth
 - 6.3 demonstrate safe games that stimulate a baby's healthy physical and intellectual development
 - 6.4 examine the role of infant-caregiver attachment and the correlation between attachment and emotional and psychological development
 - 6.5 evaluate the importance of socio-emotional development during infancy and strategies to support healthy development; e.g., strategies for responding to crying
 - 6.6 demonstrate how to safely handle an infant; e.g., carrying, diapering, bathing, feeding, burping
- 7. demonstrate basic competencies**
 - 7.1 demonstrate fundamental skills to:
 - 7.1.1 communicate
 - 7.1.2 manage information
 - 7.1.3 use numbers
 - 7.1.4 think and solve problems

- 7.2 demonstrate personal management skills to:
 - 7.2.1 demonstrate positive attitudes and behaviours
 - 7.2.2 be responsible
 - 7.2.3 be adaptable
 - 7.2.4 learn continuously
 - 7.2.5 work safely
- 7.3 demonstrate teamwork skills to:
 - 7.3.1 work with others
 - 7.3.2 participate in projects and tasks
- 8. create a transitional strategy to accommodate personal changes and build personal values**
 - 8.1 identify short-term and long-term goals
 - 8.2 identify steps to achieve goals

COURSE HCS3150: ADVANCES IN MEDICAL TECHNOLOGY

Level: Advanced

Prerequisite: None

Description: Students research current technologies in medical diagnosis and treatment and examine biomedical ethics surrounding current and emerging technologies.

Outcomes: The student will:

1. analyze past, present and future trends in health services

- 1.1 describe the role of community-based care (Victorian Order of Nurses [VON], home care)
- 1.2 analyze historical trends to meet the expense of hospitalization (user pay, free)
- 1.3 analyze current issues related to medical personnel, including:
 - 1.3.1 shortage or surplus of medical and nursing professionals
 - 1.3.2 impact of research on need for personnel
 - 1.3.3 changes in the degree of professional autonomy
 - 1.3.4 impact of the import and export of health care professionals
 - 1.3.5 changes to training requirements
- 1.4 compare advantages and disadvantages of global health care systems

2. evaluate services, diagnostic procedures and health technologies available in acute, rehabilitation and extended care centres

- 2.1 outline the elements of care provided in treatment facilities (acute care, convalescent care, extended care, palliative care)
- 2.2 analyze availability and accessibility of services in acute, rehabilitation and extended care centres, including availability of:
 - 2.2.1 physicians
 - 2.2.2 nursing personnel
 - 2.2.3 dietary, housekeeping and maintenance services
 - 2.2.4 volunteer services
 - 2.2.5 rehabilitation and physiotherapy
- 2.3 analyze availability and accessibility of technology and diagnostic procedures in health care, including:
 - 2.3.1 operative care (general surgery, laser surgery, laparoscopy, plastic surgery, fibre optics)
 - 2.3.2 imaging services
- 2.4 describe the purpose of patient care before, during and after the following procedures:
 - 2.4.1 general surgery
 - 2.4.2 less invasive surgery (lasers, fibre optics)
 - 2.4.3 imaging services
- 2.5 describe anesthetic options
- 2.6 describe pain management options in different health care settings

3. analyze emerging technologies, including scope of use, availability, social and emotional impact, economics and ethical issues

- 3.1 summarize technological advancements for the 21st century, including an assessment of the social, emotional, economic and ethical issues raised by emerging technologies such as:
 - 3.1.1 gene therapy
 - 3.1.2 synthetic body parts
 - 3.1.3 euthanasia

- 3.1.4 reproductive technology
- 3.1.5 computerized health care
- 3.1.6 robotics
- 3.1.7 transplants
- 3.2 present an in-depth overview and analysis of at least one specific, recent advancement in medical technology
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE HCS3910: HCS PROJECT D

Level: Advanced

Prerequisite: None

Description: Students develop project design and management skills to extend and enhance competencies and skills in other CTS courses through contexts that are personally relevant.

Parameters: Advanced project courses must connect with a minimum of two CTS courses, one of which must be at the advanced level and be in the same occupational area as the project course. The other CTS course(s) must be at least at the intermediate level from any occupational area.

Project courses cannot be connected to other project courses or practicum courses.

All projects and/or performances, whether teacher- or student-led, must include a course outline or student proposal.

Outcomes:

The teacher/student will:

- 1. identify the connection between this project course and two or more CTS courses**
 - 1.1 identify the outcome(s) from each identified CTS course that support the project and/or performance deliverables
 - 1.2 explain how these outcomes are being connected to the project and/or performance deliverables
- 2. propose the project and/or performance**
 - 2.1 identify the project and/or performance by:
 - 2.1.1 preparing a plan
 - 2.1.2 clarifying the purposes
 - 2.1.3 defining the deliverables
 - 2.1.4 specifying time lines
 - 2.1.5 explaining terminology, tools and processes
 - 2.1.6 defining resources; e.g., materials, costs, staffing
 - 2.2 identify and comply with all related health and safety standards
 - 2.3 define assessment standards (indicators for success)
 - 2.4 present the proposal and obtain necessary approvals

The student will:

- 3. meet goals as defined within the plan**
 - 3.1 complete the project and/or performance as outlined
 - 3.2 monitor the project and/or performance and make necessary adjustments
 - 3.3 present the project and/or performance, indicating the:
 - 3.3.1 outcomes attained
 - 3.3.2 relationship of outcomes to goals originally set

- 3.4 evaluate the project and/or performance, indicating the:
 - 3.4.1 processes and strategies used
 - 3.4.2 recommendations on how the project and/or performance could have been improved
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE HCS3920: HCS PROJECT E

Level: Advanced

Prerequisite: None

Description: Students develop project design and management skills to extend and enhance competencies and skills in other CTS courses through contexts that are personally relevant.

Parameters: Advanced project courses must connect with a minimum of two CTS courses, one of which must be at the advanced level and be in the same occupational area as the project course. The other CTS course(s) must be at least at the intermediate level from any occupational area.

Project courses cannot be connected to other project courses or practicum courses.

All projects and/or performances, whether teacher- or student-led, must include a course outline or student proposal.

Outcomes:

The teacher/student will:

- 1. identify the connection between this project course and two or more CTS courses**
 - 1.1 identify the outcome(s) from each identified CTS course that support the project and/or performance deliverables
 - 1.2 explain how these outcomes are being connected to the project and/or performance deliverables
- 2. propose the project and/or performance**
 - 2.1 identify the project and/or performance by:
 - 2.1.1 preparing a plan
 - 2.1.2 clarifying the purposes
 - 2.1.3 defining the deliverables
 - 2.1.4 specifying time lines
 - 2.1.5 explaining terminology, tools and processes
 - 2.1.6 defining resources; e.g., materials, costs, staffing
 - 2.2 identify and comply with all related health and safety standards
 - 2.3 define assessment standards (indicators for success)
 - 2.4 present the proposal and obtain necessary approvals

The student will:

- 3. meet goals as defined within the plan**
 - 3.1 complete the project and/or performance as outlined
 - 3.2 monitor the project and/or performance and make necessary adjustments
 - 3.3 present the project and/or performance, indicating the:
 - 3.3.1 outcomes attained
 - 3.3.2 relationship of outcomes to goals originally set

- 3.4 evaluate the project and/or performance, indicating the:
 - 3.4.1 processes and strategies used
 - 3.4.2 recommendations on how the project and/or performance could have been improved
- 4. demonstrate basic competencies**
 - 4.1 demonstrate fundamental skills to:
 - 4.1.1 communicate
 - 4.1.2 manage information
 - 4.1.3 use numbers
 - 4.1.4 think and solve problems
 - 4.2 demonstrate personal management skills to:
 - 4.2.1 demonstrate positive attitudes and behaviours
 - 4.2.2 be responsible
 - 4.2.3 be adaptable
 - 4.2.4 learn continuously
 - 4.2.5 work safely
 - 4.3 demonstrate teamwork skills to:
 - 4.3.1 work with others
 - 4.3.2 participate in projects and tasks
- 5. create a transitional strategy to accommodate personal changes and build personal values**
 - 5.1 identify short-term and long-term goals
 - 5.2 identify steps to achieve goals

COURSE HCS3950: HCS ADVANCED PRACTICUM

Level: Advanced

Prerequisite: None

Description: Students apply prior learning and demonstrate the attitudes, skills and knowledge required by an external organization to achieve a credential/credentials or an articulation.

Parameters: This practicum course, which may be delivered on- or off-campus, should be accessed only by students continuing to work toward attaining a recognized credential/credentials or an articulation offered by an external organization. This course must be connected to at least one CTS course from the same occupational area and cannot be used in conjunction with any introductory (1XXX) level course. A practicum course cannot be delivered as a stand-alone course, cannot be combined with a CTS project course and cannot be used in conjunction with the Registered Apprenticeship Program or the Green Certificate Program.

Outcomes: The student will:

- 1. perform assigned tasks and responsibilities, as required by the organization granting the credential(s) or articulation**
 - 1.1 identify regulations and regulatory bodies related to the credential(s) or articulation
 - 1.2 describe personal roles and responsibilities, including:
 - 1.2.1 key responsibilities
 - 1.2.2 support functions/responsibilities/expectations
 - 1.2.3 code of ethics and/or conduct
 - 1.3 describe personal work responsibilities and categorize them as:
 - 1.3.1 routine tasks; e.g., daily, weekly, monthly, yearly
 - 1.3.2 non-routine tasks; e.g., emergencies
 - 1.3.3 tasks requiring personal judgement
 - 1.3.4 tasks requiring approval of a supervisor
 - 1.4 demonstrate basic employability skills and perform assigned tasks and responsibilities related to the credential(s) or articulation
- 2. analyze personal performance in relation to established standards**
 - 2.1 evaluate application of the attitudes, skills and knowledge developed in related CTS courses
 - 2.2 evaluate standards of performance in terms of:
 - 2.2.1 quality of work
 - 2.2.2 quantity of work
 - 2.3 evaluate adherence to workplace legislation related to health and safety
 - 2.4 evaluate the performance requirements of an individual who is trained, experienced and employed in a related occupation in terms of:
 - 2.4.1 training and certification
 - 2.4.2 interpersonal skills
 - 2.4.3 technical skills
 - 2.4.4 ethics

3. demonstrate basic competencies

3.1 demonstrate fundamental skills to:

- 3.1.1 communicate
- 3.1.2 manage information
- 3.1.3 use numbers
- 3.1.4 think and solve problems

3.2 demonstrate personal management skills to:

- 3.2.1 demonstrate positive attitudes and behaviours
- 3.2.2 be responsible
- 3.2.3 be adaptable
- 3.2.4 learn continuously
- 3.2.5 work safely

3.3 demonstrate teamwork skills to:

- 3.3.1 work with others
- 3.3.2 participate in projects and tasks

4. create a transitional strategy to accommodate personal changes and build personal values

4.1 identify short-term and long-term goals

4.2 identify steps to achieve goals