

## **COURSE AGR2010: DIVERSITY IN AGRICULTURE**

**Level:** Intermediate

**Prerequisite:** None

**Description:** Students analyze a range of issues relevant to agriculture and food production and develop strategies for dealing with agricultural issues within a local and global context.

**Parameters:** Access to community and government agencies responsible for agricultural planning, research and resource management.

**Outcomes:** The student will:

### **1. analyze a range of economic, environmental and social issues in agriculture**

- 1.1 list and categorize concerns being expressed regarding a social, economic and environmental issue in agriculture; e.g., environmental impacts, nutritional or food safety concerns, social, political or economic factors, legal/ethical factors
- 1.2 analyze a current issue in agriculture critically by:
  - 1.2.1 identifying conflicts among different stakeholder groups
  - 1.2.2 gathering information relevant to different sides of the issue
  - 1.2.3 considering the implications of adopting different alternatives

### **2. compare and contrast issues that involve agriculture in Alberta and Canada with similar issues at a global level**

- 2.1 relate a local social, economic and environmental issue in agriculture to a similar issue at the global level; e.g., world food distribution, carbon sequestration, nutraceuticals, zoonotic diseases
- 2.2 compare statements made by scientists, different interest groups and the media regarding the issue
- 2.3 describe costs and benefits associated with different approaches for dealing with the issue at local and global levels

### **3. present a plan of action to address a complex issue in agriculture**

- 3.1 identify and describe a complex issue in agriculture, assuming the role of one of the stakeholders
- 3.2 clarify the issue and identify related perspectives
- 3.3 develop a position and provide a rationale
- 3.4 outline a personal plan of action

### **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 AGR2020: ANIMAL HUSBANDRY/WELFARE**

**Level:** Intermediate

**Prerequisites:** AGR1040: Introduction to Animal Basics  
AGR3000: Agriculture Safety

**Description:** Students apply the principles of animal science and health technology in providing care for a domestic animal.

**Parameters:** Access to a domestic animal and an appropriate animal housing/fencing structure.

**Outcomes:** The student will:

- 1. differentiate among and discuss the classifications and breeds of domestic animals**
  - 1.1 identify and explain the advantages and disadvantages of owning a specific animal breed
  - 1.2 identify criteria to be considered when selecting an animal (e.g., companion animal, performance animal, livestock), including:
    - 1.2.1 type of animal
    - 1.2.2 breed
    - 1.2.3 gender
- 2. identify and describe indicators of health in a domestic animal**
  - 2.1 research the history of the selected animal of choice
  - 2.2 identify and describe indicators of health in a selected domestic animal, considering:
    - 2.2.1 physical signs of good and poor health
    - 2.2.2 normal and abnormal vital signs
    - 2.2.3 symptoms of disease and parasites
  - 2.3 explain basic food requirements in specific situations; e.g., newborn, maintenance, growth or finishing, pregnant or lactating mothers, aging
  - 2.4 describe contributions of technology in current animal husbandry and health care practices, including:
    - 2.4.1 nutrition
    - 2.4.2 disease prevention and treatment
    - 2.4.3 reproduction
  - 2.5 describe normal/abnormal physiology and anatomy for a selected domestic animal
  - 2.6 describe normal/abnormal food sources and the impact of nutrient deficiencies on animal health
- 3. explain factors that contribute to a healthy animal environment**
  - 3.1 describe characteristics of a healthy animal environment and conditions that can place an animal's health or safety at risk, considering:
    - 3.1.1 sanitation
    - 3.1.2 housing; e.g., kennel, cage and paddock management
    - 3.1.3 methods of restraint
  - 3.2 identify the shelter needs of a selected domestic animal
  - 3.3 maintain desirable handling, housing and fencing structures
- 4. identify agents and sources of stress for animals and their implications for health**
  - 4.1 describe abnormal animal behaviour and practise intervention strategies for a sick animal, including:
    - 4.1.1 reducing stress
    - 4.1.2 administering emergency first aid
    - 4.1.3 treating/controlling diseases and other ailments
    - 4.1.4 administering medication

- 4.2 describe transportation-related sources of stress
- 4.3 describe veterinary services that are available and the protocol for accessing these services, including:
  - 4.3.1 when to call
  - 4.3.2 how to prepare
- 5. demonstrate practical skills in providing care for a domestic animal**
  - 5.1 demonstrate ethical behaviours in providing care for an animal; e.g., humane handling
  - 5.2 monitor vital signs and examine for diseases, parasites and other common ailments through:
    - 5.2.1 head-to-toe examination
    - 5.2.2 grooming; e.g., regular brushing/bathing
    - 5.2.3 care of feet/nails/hooves
    - 5.2.4 dental care
  - 5.3 identify appropriate birthing and newborn care
  - 5.4 explain the importance of maintaining safe domestic and market-driven environments for animals
- 6. identify and describe legislation intended to address animal welfare**
  - 6.1 distinguish between animal welfare and animal rights
  - 6.2 identify and describe organizations in the community that enforce animal protection legislation
  - 6.3 identify federal and provincial laws related to animal protection
  - 6.4 describe different perspectives regarding an issue in animal welfare, including:
    - 6.4.1 ethical
    - 6.4.2 legal
    - 6.4.3 economic
    - 6.4.4 social
  - 6.5 outline a protocol for reporting an animal welfare issue
- 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 AGR2030: FIELD CROPS 1**

**Level:** Intermediate

**Prerequisite:** AGR3000: Agriculture Safety

**Description:** Students explore different field crop species in Alberta. Using basic equipment, students demonstrate practical skills in planting, growing and harvesting field crops.

**Parameters:** Access to a land laboratory. Facilities and equipment should permit students to perform practical skills in **two** or more areas of crop production; e.g., soil preparation, seeding/propagation, cultivation, irrigation, fertilizing, pest and disease control, harvesting.

**Supporting Courses:** AGR1050: Plant Propagation  
HCS3000: Workplace Safety Systems

**Outcomes:** The student will:

### **1. identify and describe field crop species suited to Alberta climates**

- 1.1 identify field crops grown in western Canada according to:
  - 1.1.1 common name
  - 1.1.2 general characteristics/growth habits
  - 1.1.3 basic structural parts
- 1.2 describe the structure, function and growth habits of field crop species and the significance of these characteristics to the producer, considering:
  - 1.2.1 cells and tissues
  - 1.2.2 roots
  - 1.2.3 stems
  - 1.2.4 leaves
  - 1.2.5 flowers and fruits
- 1.3 explain basic plant processes and related terminology, including:
  - 1.3.1 water and nutrient intake
  - 1.3.2 respiration
  - 1.3.3 photosynthesis
  - 1.3.4 transpiration
- 1.4 identify field crops that are suited to specific applications in Alberta; e.g., vegetable and fruit crops, pulse crops, oil seeds, specialty crops

### **2. identify and describe basic equipment used in crop production**

- 2.1 identify types of equipment that are used at each stage of production; e.g., hand and/or power equipment used in seeding/planting, tillage, water/fertilizer application and harvesting
- 2.2 identify and describe criteria relevant to the selection and/or design of production equipment, including:
  - 2.2.1 function, operation and maintenance
  - 2.2.2 safety
  - 2.2.3 efficiency
  - 2.2.4 ethical, legal and environmental factors
  - 2.2.5 economics and cost
- 2.3 identify policy, legislation and safe practices relevant to the use of equipment and crop inputs

- 3. demonstrate practical skills in planting, growing and/or harvesting a field crop**
  - 3.1 identify basic cultural requirements for producing field crops, including:
    - 3.1.1 water
    - 3.1.2 light (quantity, quality, duration)
    - 3.1.3 temperature
    - 3.1.4 air
    - 3.1.5 space variables
    - 3.1.6 nutrients
  - 3.2 describe how weather and climate may affect production activities
  - 3.3 relate principles of nutrition to production practices, considering:
    - 3.3.1 the function and sources of essential nutrients
    - 3.3.2 the consequences of nutrient excesses and deficiencies
    - 3.3.3 fertilizer formulation
  - 3.4 describe the symptoms, treatment and prevention of major pests, diseases and ailments that affect the health of plants, considering cultural, mechanical, biological and chemical methods of control
  - 3.5 demonstrate safe use of equipment
  - 3.6 perform basic field crop production activities; e.g., soil preparation, seeding/propagation, crop cultivation, irrigation/fertilization, pest/weed/disease control, harvesting
- 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 AGR2040: LIVESTOCK/POULTRY 1**

**Level:** Intermediate

**Prerequisite:** AGR3000: Agriculture Safety

**Description:** Students explore different breeds of livestock, poultry or other animal commodities. Focusing on basic anatomy and physiology and the requirements for growing and finishing practices, students will consider the welfare of the animals and the technology available.

**Parameters:** Access to livestock, poultry or specialty animals and to appropriate animal housing and fencing structures. Potential areas of specialization include the production of cattle (beef or dairy), poultry, swine, sheep and diversified livestock (elk, bison and deer).

**Supporting Courses:** AGR1040: Introduction to Animal Basics  
AGR2020: Animal Husbandry/Welfare

**Outcomes:** The student will:

- 1. describe the basic anatomy, physiology and breeds of cattle (beef or dairy), sheep, swine, poultry or diversified livestock**
  - 1.1 examine major classes and breeds of commercial species by:
    - 1.1.1 describing the desirable characteristics of major classes and breeds
    - 1.1.2 identifying animal breeds that are suited to specific production and market applications
  - 1.2 describe the characteristics and function of major anatomical structures in livestock, poultry or diversified livestock
  - 1.3 explain vital life processes and related terminology; e.g., respiration, digestion, waste/excretion, growth, production
  - 1.4 identify basic physical requirements for producing livestock, poultry or diversified livestock, including:
    - 1.4.1 water and food
    - 1.4.2 light
    - 1.4.3 temperature
    - 1.4.4 air/ventilation
    - 1.4.5 space variables
  - 1.5 describe how weather and climate may affect production activities
  - 1.6 describe normal/abnormal feed sources and the impact of nutrient deficiencies on animal health
  - 1.7 describe common pests, diseases and ailments that affect the health of animals within the industry, considering:
    - 1.7.1 identification, symptoms and treatment
    - 1.7.2 cultural, mechanical, biological and chemical methods of control
  - 1.8 identify policy, legislation and safe practices relevant to raising livestock, poultry or specialty animals
- 2. demonstrate practical skills in raising, growing and finishing cattle (beef or dairy), sheep, swine, poultry or diversified livestock**
  - 2.1 provide basic feed requirements in specific situations; e.g., maintenance, growth or finishing, pregnant or lactating mother
  - 2.2 demonstrate accepted methods of handling and restraining animals; e.g., humane handling, transportation

- 2.3 administer basic treatments for common pests, diseases and/or ailments; e.g., injections, dusting
- 2.4 clean and disinfect trailers, pens and other animal holding structures
- 2.5 operate equipment safely and maintain equipment used at each stage of production within the industry; e.g., hand and/or power equipment used in maintaining health and nutrition, handling equipment
- 3. explain factors that contribute to a healthy animal environment**
  - 3.1 describe housing and fencing structures used in producing livestock, poultry or specialty animals, including:
    - 3.1.1 fences and shelters
    - 3.1.2 totally confined rearing structures
    - 3.1.3 methods of restraint
  - 3.2 evaluate the design and/or construction of structures and equipment with respect to:
    - 3.2.1 function, operation and maintenance
    - 3.2.2 safety and efficiency
    - 3.2.3 ethical, legal and environmental factors
    - 3.2.4 economics and cost
  - 3.3 identify policy, legislation and safe practices relevant to the use of structures and equipment within the industry
- 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 AGR2045: COMPANION ANIMALS**

**Level:** Intermediate

**Prerequisite:** None

**Description:** Students explore the history, physiology, behaviour, health and welfare, care, and husbandry of a variety of companion animal species.

**Supporting Course:** HSS1100: Nature & Wellness

**Outcomes:** The student will:

- 1. explain the origins of different companion animal species and the historical roles of these species in society**
  - 1.1 define *domestication*
  - 1.2 describe the history, purpose and process of domestication for:
    - 1.2.1 dogs
    - 1.2.2 cats
    - 1.2.3 other companion animals
  - 1.3 describe the early “jobs” of domesticated companion animals, considering:
    - 1.3.1 dogs—protection, herding, hunting, pest control, companionship
    - 1.3.2 cats—rodent control, hunting, companionship
    - 1.3.3 other companion animals—hunting, companionship
  - 1.4 explain the human–companion animal bond, including the contributions of companion animals to humans and society, such as:
    - 1.4.1 guide dogs
    - 1.4.2 service dogs; e.g., hearing dogs, assistance dogs, autism dogs, seizure-response dogs
    - 1.4.3 police/military dogs
    - 1.4.4 animals that provide therapeutic benefit to humans in a variety of settings
- 2. analyze the breeds and specialized characteristics of dogs and cats**
  - 2.1 define the meaning of *animal breed*
  - 2.2 categorize dogs into the seven Canadian Kennel Club groups of dogs, including:
    - 2.2.1 sporting group
    - 2.2.2 hound group
    - 2.2.3 working group
    - 2.2.4 terrier group
    - 2.2.5 toy group
    - 2.2.6 non-sporting group
    - 2.2.7 herding group
  - 2.3 describe the historical jobs of dogs and the general physical and behavioural characteristics required by dogs to perform these roles for each of the seven Canadian Kennel Club categories
  - 2.4 categorize cats into the most commonly registered cat breeds in North America by identifying general physical and behavioural characteristics of the breeds
- 3. explain the physiology of companion animals, including species/breed differences that have arisen due to the development of the breed to perform a specific job**
  - 3.1 describe the physiology of dogs, including:
    - 3.1.1 skeletal structure
    - 3.1.2 olfactory system

- 3.1.3 coat types
- 3.1.4 digestive system
- 3.1.5 reproduction
- 3.1.6 behaviour
- 3.2 describe the physiology of cats, including:
  - 3.2.1 skeletal structure
  - 3.2.2 coat types
  - 3.2.3 digestive system
  - 3.2.4 reproduction
  - 3.2.5 behaviour
- 3.3 describe the physiology of birds (both Passeriformes and Psittaciformes), including:
  - 3.3.1 digestive system
  - 3.3.2 respiratory system
  - 3.3.3 feathers
  - 3.3.4 reproduction
  - 3.3.5 behaviour
- 3.4 describe the physiology of rodents, rabbits and ferrets, including:
  - 3.4.1 skeletal structure
  - 3.4.2 digestive system
  - 3.4.3 reproduction
  - 3.4.4 behaviour
- 3.5 describe the physiology of reptiles and amphibians, including:
  - 3.5.1 skin
  - 3.5.2 digestive system
  - 3.5.3 reproduction
  - 3.5.4 behaviour
- 4. evaluate principles of companion animal care, husbandry and handling**
  - 4.1 justify the skills and knowledge needed for responsible pet ownership, including:
    - 4.1.1 selecting and purchasing a companion animal
    - 4.1.2 comparing reputable rescue organizations, breeders and pet stores as sources for obtaining a companion animal
    - 4.1.3 topics to research before selecting and purchasing
    - 4.1.4 spaying and neutering
    - 4.1.5 use of controversial optional surgical procedures (ear cropping, tail docking, declawing)
  - 4.2 describe municipal, provincial and federal laws regulating companion animal care and ownership/guardianship
  - 4.3 identify similarities and differences in the physical and psychological needs of different species (dogs, cats, birds, rodents, ferrets, rabbits, reptiles and amphibians) and of breeds within those species (e.g., Newfoundland versus Chihuahuas), including:
    - 4.3.1 safe housing
    - 4.3.2 safety in the home—“pet proofing” a house
    - 4.3.3 grooming
    - 4.3.4 psychological requirements
    - 4.3.5 exercise
  - 4.4 explain the nutritional requirements of companion animals, including:
    - 4.4.1 water
    - 4.4.2 food
    - 4.4.3 toxicological hazards
    - 4.4.4 weight management—why this is important

- 4.5 describe important companion animal behaviours, using case studies and personal experiences, including signs of stress, fear and aggression for:
  - 4.5.1 dogs
  - 4.5.2 cats
  - 4.5.3 birds
  - 4.5.4 rodents, rabbits and ferrets
  - 4.5.5 reptiles and amphibians

**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 AGR2050: AGRIFOODS 1**

**Level:** Intermediate

**Prerequisite:** None

**Description:** Students learn about the processes and practices related to producing an agrifood product or providing a related service, focusing on industry inputs and processing technologies and practices.

**Parameters:** Access to an agrifood industry. Potential areas of investigation include dairy, beef, pork, poultry, cereals, oil seeds, sugar beets, wine, fruits/vegetables and honey.

**Supporting Courses:** FOD1010: Food Basics  
FOD1070: Farm to Table  
MAM1050: Agriculture Consumer Products & Services

**Outcomes:** The student will:

- 1. describe the range of input materials, food products and/or related services characteristic of an agrifood industry**
  - 1.1 explain the stages and steps in processing the commodity and providing the value-added product and/or service
  - 1.2 explain applications of technology in processing the commodity and providing the value-added product and/or service
  - 1.3 explain the need for quality control within the processing industry, including:
    - 1.3.1 testing/inspection of raw materials
    - 1.3.2 product quality and uniformity
  - 1.4 explore and describe systems used to grade products within the industry
- 2. describe technologies and practices used in processing an agricultural food product or in providing a related service**
  - 2.1 describe methods of preserving perishable products within the industry; e.g., blanching and canning, dehydration and freeze-drying, fermentation, refrigeration and freezing, atmosphere control, food additives
  - 2.2 describe packaging and labelling practices within the industry
  - 2.3 describe transportation and storage practices within the industry and describe their impact on industry location and product costs
  - 2.4 describe buildings/structures and equipment used in processing, transportation and storage; e.g., design features, operation and maintenance, safety standards, economics/cost
  - 2.5 identify safety concerns, regulations and legislated standards within the industry; e.g., handling of tools, equipment, food products
  - 2.6 discuss the use of time and resources as they apply to producing an agrifood product or service
  - 2.7 demonstrate skills and techniques for the safe and sanitary handling of tools, equipment and food products and for the efficient use of time and resources
- 3. develop a plan for altering an existing agricultural or horticultural product or for developing a new product**
  - 3.1 identify the agricultural or horticultural commodity, product or service to be marketed
  - 3.2 research local, national and international markets for the agricultural or horticultural commodity, product or service

- 3.3 identify factors that influence consumer trends and the development of new markets for an agricultural or horticultural product; e.g., economic, environmental, social and demographic
- 3.4 prepare a flowchart that illustrates basic stages and steps in processing an agricultural or horticultural product

**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 AGR2060: LANDSCAPING 2**

**Level:** Intermediate

**Prerequisite:** AGR1070: Landscaping 1

**Description:** Students demonstrate basic landscape practices, focusing attention on plant identification, weed/pest control and equipment maintenance.

**Parameters:** Access to a residential, recreational and/or roadside landscape and appropriate equipment and supplies. Facilities and equipment should permit students to perform practical tasks in basic landscape services; e.g., watering, cultivation/mulching, corrective pruning, weed control, installation/removal of plant material.

**Supporting Courses:** AGR3000: Agriculture Safety  
HCS2020: First Aid/CPR with AED  
HCS3000: Workplace Safety Systems

**Outcomes:** The student will:

### **1. identify plants suitable for use in Alberta landscapes**

- 1.1 describe methods of identifying landscape plants, including:
  - 1.1.1 using common names
  - 1.1.2 using botanical nomenclature
- 1.2 identify five deciduous and five coniferous woody plants suitable for use in Alberta landscapes according to:
  - 1.2.1 common name and genus
  - 1.2.2 general characteristics/growth habits
  - 1.2.3 functional use in Alberta landscapes
- 1.3 identify five selected annuals according to:
  - 1.3.1 common name and variety
  - 1.3.2 general characteristics/growth habits
  - 1.3.3 functional use in Alberta landscapes
- 1.4 identify five selected perennials according to:
  - 1.4.1 common name and variety
  - 1.4.2 general characteristics/growth habits
  - 1.4.3 functional use in Alberta landscapes
- 1.5 identify five selected bulbs, tubers and rhizomes according to:
  - 1.5.1 common name and variety
  - 1.5.2 general characteristics/growth habits
  - 1.5.3 functional use in Alberta landscapes

### **2. identify weeds/pests commonly found in the Alberta landscape**

- 2.1 identify five selected weeds/pests according to:
  - 2.1.1 common name
  - 2.1.2 general characteristics/growth habits
- 2.2 compare methods used to control these weeds/pests

### **3. demonstrate the safe use of hand tools and/or power equipment**

- 3.1 demonstrate safe practices and identify potential hazards
- 3.2 prepare equipment for use; e.g., add gas, check oil, check tires

- 4. perform routine maintenance of hand tools and/or power equipment used for landscaping**
  - 4.1 perform safety checks on equipment
  - 4.2 record/report general maintenance and/or malfunctions; e.g., hours of operation, periodic servicing
  - 4.3 prepare basic hand tools/power equipment for off-season storage; e.g., cleaning
- 5. demonstrate proper landscape procedures**
  - 5.1 explain how environmental conditions affect plant survival; e.g., zones, wind, drought
  - 5.2 apply seasonal landscaping maintenance practices; e.g., weeding, transplanting, preparing beds, staking, pest control, mulching
  - 5.3 investigate the benefits of pruning trees, shrubs and other landscape plants
  - 5.4 discuss composting and its benefits
  - 5.5 maintain a logbook of landscape gardening activities
- 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 AGR2070: EQUINE 1**

**Level:** Intermediate

**Prerequisite:** AGR3000: Agriculture Safety

**Description:** Students develop practical skills, based on approved practices, for providing the daily care of a horse, focusing on the origin and history of horses, anatomy and conformation, types and breeds, handling and feeding practices, and basic health care.

**Parameters:** Access to a horse and appropriate equine housing/fencing structures.

It is recommended that students have a **minimum of 50 hours** of previous experience in horse handling and horse care prior to commencing the study of this course. Students must have access to instruction from an individual with specialized training and/or experience related to horsemanship and/or English or Western riding.

**Supporting Courses:** AGR1040: Introduction to Animal Basics  
AGR2020: Animal Husbandry/Welfare

**Outcomes:** The student will:

- 1. describe the significance, origin and conformational features of horses**
  - 1.1 describe the origin and history of horses and factors that led to domestication
  - 1.2 identify different types of benefits associated with horses, including:
    - 1.2.1 pleasure
    - 1.2.2 companionship
    - 1.2.3 performance
    - 1.2.4 breeding
  - 1.3 identify and describe the characteristics and functions of basic external parts of a horse
  - 1.4 analyze and explain conformational features of major body parts, including:
    - 1.4.1 the head and neck
    - 1.4.2 the fore limbs and hind limbs
  - 1.5 identify factors determining a horse's balance
- 2. identify the types, breeds and characteristics of horses**
  - 2.1 identify and describe the distinguishing characteristics of draft horses and light horses
  - 2.2 identify breeds of draft and light horses that are suited to specific applications
  - 2.3 explain how characteristics of the horse are passed from generation to generation through commonly used breeding systems, including:
    - 2.3.1 inbreeding
    - 2.3.2 line breeding
    - 2.3.3 crossbreeding
  - 2.4 explain principles of heredity relevant to a specific breed of horse, including:
    - 2.4.1 dominant and recessive traits
    - 2.4.2 selection criteria and procedures
- 3. demonstrate practical skills and approved procedures for horse handling, feeding and health care**
  - 3.1 apply ethical behaviour in providing care for a horse

- 3.2 identify environmental factors that need to be considered in providing care for a horse, including:
  - 3.2.1 weather and climate
  - 3.2.2 land, soil and water characteristics
- 3.3 demonstrate appropriate techniques for handling a horse and for risk management, including:
  - 3.3.1 approaching a horse
  - 3.3.2 leading a horse
  - 3.3.3 cleaning a horse's feet
  - 3.3.4 grooming a horse
  - 3.3.5 tying a horse
  - 3.3.6 restraining a horse
  - 3.3.7 transporting a horse
  - 3.3.8 treating horse injuries and allergies
- 3.4 perform approved horse-feeding practices by providing:
  - 3.4.1 water
  - 3.4.2 roughage
  - 3.4.3 concentrate; e.g., minerals
- 3.5 describe the importance of a regular feeding schedule
- 3.6 monitor and assess the vital signs of a horse, recognizing abnormalities
- 3.7 demonstrate appropriate care for leg wounds on a horse
- 3.8 describe appropriate care of a horse with:
  - 3.8.1 colic
  - 3.8.2 respiratory disease
  - 3.8.3 founder (laminitis)
- 3.9 identify health factors that indicate the need for veterinary services
- 4. describe policy, legislation and safe practices relevant to providing horse care**
  - 4.1 identify and describe legislation intended to address animal welfare
  - 4.2 identify and describe organizations in the community that address animal welfare
  - 4.3 compare different perspectives regarding an issue in animal welfare; e.g., social, economic, ethical
  - 4.4 outline a protocol for responding to an animal welfare issue
- 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 AGR2085: FLORAL DESIGN 2**

**Level:** Intermediate

**Prerequisite:** AGR1085: Floral Design 1

**Description:** Students study the handling requirements of flowers and foliage and the practices involved in providing floral design. Student attention will focus on plant and flower identification, elements and principles of design, floral projects and marketing practices.

**Parameters:** Access to a flower arrangement room with refrigeration, a source of water, adequate storage facilities and workbenches/table surfaces for flower arranging.

**Outcomes:** The student will:

### **1. identify and explain the handling requirements of flowers and foliage used in arrangements**

- 1.1 identify cut flowers and greenery commonly used in floral design, including:
  - 1.1.1 greenhouse or field-grown cut flowers
  - 1.1.2 imported cut flowers
  - 1.1.3 foliage and filler
- 1.2 identify dried and artificial materials commonly used in floral design, including:
  - 1.2.1 dried flowers and foliage
  - 1.2.2 silk and other fabric materials
- 1.3 relate the growth styles of flowers to their use in floral arrangements
- 1.4 explain the advantages and disadvantages of using different types of floral materials

### **2. construct fresh, dried and/or artificial floral arrangements**

- 2.1 explain and apply elements and principles of design, including:
  - 2.1.1 line, form, pattern and texture
  - 2.1.2 colour, balance and rhythm
  - 2.1.3 scale and proportion
  - 2.1.4 harmony, contrast and repetition
- 2.2 apply the colour wheel and basic colour theory
- 2.3 demonstrate asymmetrical design techniques
- 2.4 demonstrate bundling techniques
- 2.5 create a hand-tied bouquet

### **3. explain techniques used to assess the cost of products within the floral industry**

- 3.1 identify fixed and variable costs associated with floral services
- 3.2 explain and apply pricing formulas used in the floral industry
- 3.3 calculate the cost price and selling price of a floral arrangement

### **4. identify and perform safe and sanitary practices**

- 4.1 demonstrate proper handling, use and maintenance of all implements and tools
- 4.2 apply universal precautions related to blood-borne pathogens; e.g., minor cuts, blood spills
- 4.3 maintain a clean, sanitary, safe work area
- 4.4 use all materials and products appropriately
- 4.5 clean, sanitize and return implements and materials to a storage area after use
- 4.6 dispose of waste materials in an environmentally safe manner

**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 AGR2095: INDOOR PLANTS**

**Level:** Intermediate

**Prerequisite:** AGR1050: Plant Propagation

**Description:** Students study the practices involved in interiorscaping, focusing attention on plant identification and the care required for maintaining the health of indoor plants.

**Parameters:** Access to appropriate equipment that will sustain plant health.

**Outcomes:** The student will:

### **1. identify and explain the cultural requirements of interior plants**

1.1 identify interior plants by both botanical and common name, including:

- 1.1.1 tropical flowering plants
- 1.1.2 foliage plants

1.2 compare similar family traits

1.3 explain the cultural requirements of interior plants, including:

- 1.3.1 light intensity and duration; e.g., low, medium, high, very high
- 1.3.2 water; e.g., dry, moist, wet
- 1.3.3 growing medium/soil condition
- 1.3.4 temperature and humidity
- 1.3.5 nutrition; e.g., general rate, low, medium, high

### **2. develop and apply an understanding of interiorscaping**

2.1 assess the placement of indoor plants by applying knowledge of their cultural requirements

2.2 identify and explain sources of environmental stress for indoor plants, including:

- 2.2.1 central heating systems
- 2.2.2 air conditioning

### **3. demonstrate diagnostic skills regarding common plant problems**

3.1 assess a root system for colour and shape

3.2 assess watering and drainage; e.g., size/type of pot

3.3 check humidity level; e.g., colour of leaves, wilting, drying of growing tips

3.4 determine lighting conditions and placement of plants; e.g., shape of plant, sunburn through windows

3.5 determine the type of growing medium/soil used

3.6 investigate the types of fertilizers/growth stimulants used

3.7 assess plants for damage from pests, diseases and other disorders

3.8 identify plants that could potentially be a human health risk; e.g., poisonous

### **4. demonstrate safe practices regarding chemical use on indoor plants**

4.1 recognize WHMIS symbols

4.2 identify and describe appropriate techniques when dealing with pesticides and fertilizers, considering:

- 4.2.1 handling and storage
- 4.2.2 mixing
- 4.2.3 application
- 4.2.4 disposal

4.3 identify and compare organic and inorganic chemicals

- 4.4 identify additional products available in the marketplace, considering:
  - 4.4.1 purpose
  - 4.4.2 safety
  - 4.4.3 disposal
- 5. design and create a living arrangement**
  - 5.1 identify common growth requirements
  - 5.2 explain and apply elements and principles of design, including:
    - 5.2.1 line, form, pattern and texture
    - 5.2.2 colour, balance and rhythm
    - 5.2.3 scale and proportion
    - 5.2.4 harmony, contrast and repetition
  - 5.3 apply the colour wheel and basic colour theory
  - 5.4 compose an indoor plantscape according to design principles; e.g., colour, line, foliage
  - 5.5 plan and establish a living arrangement, using design principles; e.g., terrarium, dish garden, gift pan
- 6. implement a maintenance routine for an indoor plantscape**
  - 6.1 determine the type of indoor plantscape that will be cared for
  - 6.2 develop a logbook/chart to record plant maintenance, including:
    - 6.2.1 potting/repotting
    - 6.2.2 the adjustment/regulation of light and water on a routine basis
    - 6.2.3 monitoring and management of pests
    - 6.2.4 implementation of a fertilization routine
    - 6.2.5 pruning and removal of waste material in an environmentally appropriate manner
  - 6.3 assess the maintenance routine
- 7. identify and perform safe and sanitary practices**
  - 7.1 demonstrate proper handling, use and maintenance of all implements and tools
  - 7.2 apply universal precautions related to blood-borne pathogens; e.g., minor cuts, blood spills
  - 7.3 maintain a clean, sanitary, safe work area
  - 7.4 use all materials and products appropriately
  - 7.5 clean, sanitize and return implements and materials to a storage area after use
  - 7.6 dispose of waste materials in an environmentally safe manner
- 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. identify possible life roles related to the skills and content of this cluster**
  - 9.1 recognize and then analyze the opportunities and barriers in the immediate environment
  - 9.2 identify potential resources to minimize barriers and maximize opportunities

## **COURSE AGR2100: PROTECTIVE ENCLOSURES**

**Level:** Intermediate

**Prerequisite:** None

**Description:** Students identify essential components of a growing/living environment and demonstrate the techniques used to manage the growing/living environment within a protective enclosure.

**Parameters:** Access to a greenhouse structure or livestock/poultry enclosure.

**Outcomes:** The student will:

- 1. identify and explain essential components of controlled growing/living environments**
  - 1.1 define and give examples of controlled growing environments
  - 1.2 describe environmental components that are commonly controlled in protective enclosures; e.g., temperature, humidity, light intensity, atmosphere
  - 1.3 explain how specific problems in agricultural production are solved through environmental control
  - 1.4 describe control systems and technologies used to maintain temperature, humidity, light and atmospheric gases at specific levels
  - 1.5 describe methods of maintaining sanitation and reducing/minimizing contaminants
  - 1.6 identify utility/service requirements and energy conservation methods for a controlled growing environment
- 2. describe ways in which controlled growing/living environments can be adapted for crop production or livestock housing**
  - 2.1 explain applications of controlled growing environments in crop or livestock production; e.g., temperature, light, humidity and atmosphere control systems, feed and watering systems, sanitation and health practices
  - 2.2 prepare a design for environmental control that addresses one or more problems in a crop or livestock production venture; e.g., identify production problems caused by environmental factors, design structures and equipment that address production problems through partial or complete control of the growing environment, prepare accurate working drawings and/or models of the production facility
  - 2.3 identify benefits and problems resulting from the use of protective enclosures in crop or livestock production
- 3. demonstrate techniques used to regulate and manage growing environments within a protective enclosure**
  - 3.1 identify safety hazards and demonstrate safe practices while performing production tasks within a protective enclosure
  - 3.2 regulate and manage the growing environment for a designated crop or livestock species; e.g., operate control systems to maintain temperature, humidity and ventilation at proper levels, operate artificial lighting and shade-control mechanisms to maintain proper light intensity, regulate watering and feeding systems to ensure nutritional requirements are met
  - 3.3 maintain a daily log that details activities regarding production and/or facility management
  - 3.4 demonstrate appropriate sanitation and health practices within a protective enclosure; e.g., manage/control diseases and pests, dispose of waste material
  - 3.5 perform routine maintenance services and repairs to protective enclosures

**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 AGR2120: SOILS MANAGEMENT 1**

**Level:** Intermediate

**Prerequisite:** AGR1050: Plant Propagation

**Description:** Students examine soil structure, conduct tests to determine the physical and chemical properties of soils, and develop an understanding of the impact of soil properties on productivity.

**Parameters:** Access to a science laboratory and/or equipment and a variety of soil samples.

**Outcomes:** The student will:

### **1. describe the origin and composition of soils in Alberta**

- 1.1 identify and describe factors that influence the formation of different kinds of soils; e.g., climate, living organisms, bedrock, topography, time
- 1.2 relate soil quality to the farming industry in an area
- 1.3 describe the major components of soil and their relationship to soil productivity; e.g., minerals, organic matter, air, water
- 1.4 discuss the soil orders of the Canadian System of Soil Classification; e.g., distinguishing characteristics, typical horizon sequences

### **2. identify physical properties of soils and describe their relationship to soil productivity**

- 2.1 define soil texture and describe textural classes of soil
- 2.2 apply hand-texturing techniques to estimate the texture of a soil sample; e.g., moist cast test, ribbon test
- 2.3 define soil structure and describe factors that influence the formation of soil structure
- 2.4 identify different types of soil structures and relate soil structure to common soil horizons
- 2.5 explain the significance of colour as an indicator of soil conditions and identify descriptors used to indicate soil colour
- 2.6 interpret relationships between physical properties of soil and plant growth

### **3. identify chemical properties of soils and describe their relationship to soil productivity**

- 3.1 describe the nature and development of acidic and alkaline soils
- 3.2 define and measure soil reaction (pH)
- 3.3 describe the effect of soil pH on plant growth and describe methods of adjusting soil pH
- 3.4 discuss the origin and characteristics of saline soils
- 3.5 describe the effect of soil salinity on plant growth and describe strategies for managing saline soils

### **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 AGR2130: INTEGRATED PEST MANAGEMENT**

**Level:** Intermediate

**Prerequisite:** None

**Description:** Students identify pests and apply knowledge of pest management within the agriculture industry.

**Parameters:** Access to a horticultural or an agricultural production area.

Access to instruction from an individual with a Pesticide Applicator/Dispenser Certificate is required.

**Supporting Courses:** AGR3000: Agriculture Safety  
HCS3000: Workplace Safety Systems

**Outcomes:** The student will:

- 1. describe the life cycle and ecology of common pests within the agriculture industry**
  - 1.1 define pests and describe specific pest problems within the agriculture industry
  - 1.2 explain the benefits of pest management
  - 1.3 describe the biology and life cycles of major groups of pests; e.g., weeds, insects, diseases, vertebrates
  - 1.4 identify and classify a range of common pests; e.g., mites, ticks, birds, fungi, weeds, insects, rodents
  - 1.5 explain the interrelatedness of common pests with ecosystems and environments; e.g., relationship of soil, water and air characteristics to plant/animal health, food webs and energy chains, environmental factors that limit populations
- 2. describe biological, cultural and chemical pest-control strategies and basic principles of integrated pest management**
  - 2.1 explain basic principles of biological pest control and give examples of beneficial organisms used to control pest populations; e.g., predators, parasites, pathogens
  - 2.2 explain basic principles of cultural pest control and give examples of cultural practices used to control pest populations; e.g., soil tillage, crop rotation
  - 2.3 explain basic principles of chemical pest control
  - 2.4 provide examples of chemical families and pesticide formulations used to control pest populations and discuss the importance of rotating chemical groups to avoid pest tolerance
  - 2.5 describe and give examples of physical and mechanical pest-control strategies
  - 2.6 explain genetic resistance
  - 2.7 discuss the role of breeding programs in developing organisms that have genetic resistance to pests
  - 2.8 define and give reasons for the development of integrated pest management; e.g., management versus control perspective, environmental human health concerns
  - 2.9 explain the basic principles and strategies of integrated pest management; e.g., identification of key parts, biology of crop/host and its ecosystem, ecosystem manipulation, economic threshold levels, pest sampling and monitoring
  - 2.10 cite benefits and problems related to the use of integrated pest management as a pest-control strategy

- 3. explain legislation and policies regarding the safe handling, storage and use of chemical and biological control agents**
  - 3.1 investigate regulatory bodies and legislation established to assist pest-control programs
  - 3.2 explain safe techniques in pesticide/herbicide application; e.g., use of equipment and supplies, mixing and application techniques, clean-up and disposal
  - 3.3 describe the impact of pest-control practices on human and environmental health
- 4. develop and implement an integrated pest management program**
  - 4.1 identify specific pest problems within the industry
  - 4.2 perform pest sampling and monitoring procedures in order to determine the presence of pests, their stage of development and the nature/extent of damage caused
  - 4.3 identify threshold levels that determine when pest control measures should be implemented
  - 4.4 identify and apply pest management procedures that are based upon relevant aspects of pest/host biology and the ecosystem
  - 4.5 participate in monitoring and identifying pests within a defined area; e.g., garden, greenhouse, field crop
- 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 AGR2150: GREENHOUSE/NURSERY CROPS 2**

**Level:** Intermediate

**Prerequisite:** AGR1150: Greenhouse/Nursery Crops 1

**Description:** Students identify suitable greenhouse crops, demonstrate understanding of growth requirements and necessary physical structures and equipment, and engage in practical production tasks.

**Parameters:** Access to a land laboratory and/or controlled growing environment.  
  
Access to instruction from an individual with a Pesticide Applicator/Dispenser Certificate is required.

**Supporting Courses:** AGR1050: Plant Propagation  
AGR3000: Agriculture Safety  
HCS2020: First Aid/CPR with AED  
HCS3000: Workplace Safety Systems

**Outcomes:** The student will:

- 1. identify and describe greenhouse plants suited to Alberta climates**
  - 1.1 identify seasonal crops grown in Alberta greenhouses; e.g., poinsettias, bedding plants, Easter lilies, hydrangeas
  - 1.2 evaluate and assist in the selection of plant material
  - 1.3 determine the growth requirements of a crop by:
    - 1.3.1 assessing a time line and participating in a scheduling process
    - 1.3.2 evaluating cultural requirements; e.g., soil medium, light, water, fertilizer, spacing
- 2. apply principles of nutrition to production practices**
  - 2.1 review the functions of micronutrients and macronutrients
  - 2.2 identify excesses and deficiencies of nutrients
  - 2.3 discuss fertilizer formulations
  - 2.4 determine the pH and electroconductivity (EC) levels of soil
  - 2.5 assist with the application of necessary nutrients
- 3. select and apply equipment and structures used in greenhouse crop production**
  - 3.1 determine the function and safe use of hand tools; e.g., dibber stick, sifters, secateurs
  - 3.2 determine the function and appropriate use of structures; e.g., benches, cold frames, watering systems, shading
- 4. demonstrate practical skills in growing a greenhouse crop**
  - 4.1 prepare a growing medium/seed bed
  - 4.2 use appropriate methods of propagation (sexual/asexual)
  - 4.3 complete transplanting of plants as scheduled
  - 4.4 apply appropriate crop cultivation techniques; e.g., deadheading, weeding, pinching, thinning
  - 4.5 use appropriate watering and fertilizing techniques
  - 4.6 control plant pests and diseases, using nontoxic and safe material
  - 4.7 maintain an anecdotal record/logbook of production tasks

**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 AGR2910: AGR 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 AGR2920: AGR 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 AGR2950: AGR 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