



8718

INTRODUCTION TO  
HORTICULTURE (10)

20S/20E/20M

A Horticulture Course



# 8718: INTRODUCTION TO HORTICULTURE (10)

## 20S/20E/20M

### Course Description

This course is intended for students considering specialization in the horticulture program. The curriculum focuses on building knowledge and skills in landscape construction and maintenance, greenhouse maintenance and production, and plant propagation with an emphasis on hands-on, project-based activities.

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**Goal 1:** Describe and apply appropriate **safety** and **health** practices as they relate to horticulture.

**GLO 1.1:** Create and maintain a **safe work** environment in horticulture.

- SLO 10.1.1.1: Describe workplace safety and health procedures (e.g., S.A.F.E., right to refuse). (A3.1)
- SLO 10.1.1.2: Identify and report hazards (e.g., electrical safety, ergonomics, material handling, chemicals) related to processes, materials, tools, and equipment used in horticulture and landscaping. (A3.7) (D1.2)
- SLO 10.1.1.3: Outline the safety principles for working on and around electrical equipment. (A3.8) (TSA 18)
- SLO 10.1.1.4: Follow the directions of the teacher/supervisor in regard to safe work practices.
- SLO 10.1.1.5: Follow safe practices and procedures for facilities, processes, materials, tools, and equipment used in horticulture and landscaping (e.g., keep work area clean and organized). (A3.3)
- SLO 10.1.1.6: Describe and use appropriate personal protective equipment (PPE) (e.g., gloves, safety glasses or goggles, hearing protection, respirator mask) and identify PPE and procedures related to PPE. (A3.2) (TSA 16)
- SLO 10.1.1.7: Locate the first aid and eyewash stations.
- SLO 10.1.1.8: Identify the process for reporting injuries.
- SLO 10.1.1.9: Identify ergonomically correct procedures to avoid injury (e.g., stress, strain, lifting).
- SLO 10.1.1.10: Identify and outline workplace fire safety principles. (A3.10) (TSA 19)
- SLO 10.1.1.11: Identify emergency evacuation and response procedures.

- SLO 10.1.1.12: Identify potential hazards with regard to personal apparel and grooming.
  - SLO 10.1.1.13: Demonstrate awareness of the principles of the Workplace Hazardous Materials Information Systems (WHMIS) as they apply to the horticulture industry and identify safety requirements as they apply to WHMIS. (A3.11) (TSA 13)
  - SLO 10.1.1.14: Describe the purpose of Material Safety Data Sheets (MSDS).
  - SLO 10.1.1.15: Demonstrate knowledge of the need and purpose of safe handling and application of chemical controls according to the label. (A3.4, A3.14)
  - SLO 10.1.1.16: Identify the hazards associated with working in a confined space and the preparation required to work safely in a confined space. (A3.9) (TSA 20)
  - SLO 10.1.1.17: Identify the hazards and precautions related to working with and around horticulture and landscaping equipment, including ladders and scaffolding. (A3.5, A3.6)
  - SLO 10.1.1.18: Identify the need for a safety checklist in the landscaping and horticulture industries (e.g., chainsaw, power lawnmower, garden tractor).
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**GLO 1.2:** Demonstrate knowledge of the **Trade Safety Awareness Manual** (<[www.gov.mb.ca/tce/apprent/apprentice/trade\\_safety/](http://www.gov.mb.ca/tce/apprent/apprentice/trade_safety/)>).

- SLO 10.1.2.1: Explain the importance of trade safety and health in reducing injuries and fatalities to young employees in Manitoba. (TSA 1)
- SLO 10.1.2.2: Describe the rights and responsibilities of employees, employers, and supervisors under the Workplace Safety and Health Act. (TSA 2)
- SLO 10.1.2.3: Describe the steps to use in the Right to Refuse process. (TSA 3)
- SLO 10.1.2.4: Explain how and where to find information on workplace safety and health. (TSA 4)
- SLO 10.1.2.5: Demonstrate how to handle a potentially dangerous work situation. (TSA 5)
- SLO 10.1.2.6: Explain the S.A.F.E. acronym. (TSA 6)
- SLO 10.1.2.7: Define workplace safety and health hazards. (TSA 7)
- SLO 10.1.2.8: Give examples of trade-specific workplace safety and health hazards. (TSA 8)
- SLO 10.1.2.9: Give examples of five types of safety and health hazards. (TSA 9)
- SLO 10.1.2.10: Define workplace safety and health risks. (TSA 10)

- SLO 10.1.2.11: Give examples of trade-specific workplace safety and health risks. (TSA 11)
- SLO 10.1.2.12: Explain the principles of hazard recognition and control as they apply to the specific trade. (TSA 12)
- SLO 10.1.2.13: Match the WHMIS hazardous materials symbols and their meanings. (TSA 14)
- SLO 10.1.2.14: Describe the importance of the Material Safety Data Sheets (MSDS). (TSA 15)
- SLO 10.1.2.15: Demonstrate proper selection and use of a variety of personal protective equipment and fall-protection systems. (TSA 17)
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**Goal 2: Demonstrate the safe and appropriate maintenance, management, and operation of equipment, tools, consumables, and materials. (GHCP B3)**

**GLO 2.1: Demonstrate the safe and appropriate maintenance and management of equipment, tools, consumables, and materials.**

- SLO 10.2.1.1: Demonstrate the safe and appropriate maintenance and management of equipment, tools, consumables, and materials
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**GLO 2.2: Demonstrate the safe operation of horticultural tools and equipment.**

- SLO 10.2.2.1: Demonstrate the safe operation of horticultural tools and equipment.
- SLO 10.2.2.2: Identify and use the correct measuring and hand tools, and power equipment for a task.
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**Goal 3: Demonstrate an understanding of the fundamentals of horticulture.**

**GLO 3.1: Demonstrate a basic understanding of plant anatomy, morphology, and physiology.**

- SLO 10.3.1.1: Identify plant categories.
- SLO 10.3.1.2: Identify plant anatomy and morphology. (B2.3)
- SLO 10.3.1.3: Identify the factors that impact plant growth and development. (B2.2)
- SLO 10.3.1.4: Identify the functions of a plant as an organism. (B2.4)
- SLO 10.3.1.5: Define plant science terminology. (B2.1)
- SLO 10.3.1.6: Define terminology associated with fertilizers. (D1.1)
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**GLO 3.2: Identify and select plants.**

- SLO 10.3.2.1: Identify a dichotomous key used to classify plants.
  - SLO 10.3.2.2: Identify morphological characteristics of plant families.
  - SLO 10.3.2.3: Identify morphological characteristics of plant genus and species.
  - SLO 10.3.2.4: Identify plants by common and botanical names, and family names. (GHCP A3)
  - SLO 10.3.2.5: Define the International System of Plant Nomenclature (taxonomy). (A6.1)
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**GLO 3.3: Demonstrate an understanding of plant care.** (GHCP B2)

- SLO 10.3.3.1: Identify cultural requirements of plants.
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**Goal 4: Demonstrate an understanding of soils and growing media.**

**GLO 4.1: Demonstrate an understanding of soils and growing media.**

- SLO 10.4.1.1: Identify the physical characteristics that must be considered when determining the suitability for plant growth.
  - SLO 10.4.1.2: Identify types of media, as well as their characteristics and applications.
  - SLO 10.4.1.3: Define soil science terminology.
  - SLO 10.4.1.4: Identify the chemical and biological properties of soils and growing media.
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**GLO 4.2: Demonstrate knowledge of the effects of soils and growing media on plants.** (GHCP A7).

- SLO 10.4.2.1: Demonstrate knowledge of the purpose of soil samples.
  - SLO 10.4.2.2: Demonstrate knowledge of the effects of water and nutrient uptake by roots.
  - SLO 10.4.2.3: Demonstrate knowledge of atmospheric conditions that influence water availability.
  - SLO 10.4.2.4: Demonstrate knowledge of types of soil amendments, as well as their characteristics and applications.
  - SLO 10.4.2.5: Recognize the considerations when selecting soil amendments for plants.
  - SLO 10.4.2.6: Recognize the procedures to select and incorporate soil amendments for plants.
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**Goal 5: Understand pest management.****GLO 5.1: Understand the principles of integrated pest management.**

- SLO 10.5.1.1: Identify common pests.
- SLO 10.5.1.2: Identify damage caused by pests.
- SLO 10.5.1.3: Identify pest control techniques.
- SLO 10.5.1.4: Identify the difference between IPM and conventional pest management.
- SLO 10.5.1.5: Identify pest biology in terms of IPM.
- SLO 10.5.1.6: Identify the ecological concepts related to IPM.
- SLO 10.5.1.7: Identify the significance of pests.

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**Goal 6: Demonstrate an understanding of the principles of plant installation and propagation.****GLO 6.1: Demonstrate an understanding of the principles of plant installation and propagation.**

- SLO 10.6.1.1: Install plant material. (GHCP B1)
- SLO 10.6.1.2: Identify different methods of plant propagation.
- SLO 10.6.1.3: Identify the difference between asexual and sexual propagation.

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**Goal 7: Demonstrate an understanding of the principles of crop production and management.****GLO 7.1: Demonstrate an understanding of crop production.**

- SLO 10.7.1.1: Identify pre-harvest and post-harvest factors that affect quality.
- SLO 10.7.1.2: Identify the factors involved in planning a greenhouse crop.
- SLO 10.7.1.3: Identify crops suitable for greenhouse production.

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**GLO 7.2: Demonstrate an understanding of crop management.**

- SLO 10.7.2.1: Identify practices to improve crop quality.
  - SLO 10.7.2.2: Identify cultural requirements that affect crop production.
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**Goal 8:** Demonstrate an understanding of the **construction techniques** relevant to the horticulture industry.

**GLO 8.1:** Identify and demonstrate different **construction techniques**.

SLO 10.8.1.1: Identify the design components of a landscape plan.

SLO 10.8.1.2: Identify information in specifications.

SLO 10.8.1.3: Identify types of landscape plans and documentation.

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**Goal 9:** Understand **career opportunities** in horticulture and related environmental fields. (GHCP D1)

**GLO 9.1:** Describe **education and career opportunities, and professional organizations** in horticulture and related environmental fields.

SLO 10.9.1.1: Describe the structure and scope of horticulture and related environmental fields. (A1.1)

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**Goal 10:** Describe and demonstrate the transferable, **cross-curricular** knowledge and skills as they pertain to horticulture.

**GLO 10.1: Read, interpret, and communicate** information relevant to horticulture.

SLO 10.10.1.1: Identify effective communication practices. (A10.1)  
(GHCP D4)

SLO 10.10.1.2: Read written information in different types of workplace documents (e.g., work instructions, emails and memos, health and safety manuals, policies, and reports). (A10.3)

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**GLO 10.2:** Apply **mathematics** knowledge and skills relevant to horticulture.

SLO 10.10.2.1: Use the basic mathematical processes of addition, subtraction, multiplication, and division. (B1.1)

SLO 10.10.2.2: Calculate measurements. (B1.2)

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**GLO 10.3:** Apply **other subject areas** (art, physical education/health education) knowledge and skills relevant to horticulture.

SLO 10.10.3.1: Discuss the fitness requirements for working in horticulture and related fields.

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**Goal 11:** Demonstrate an awareness of **sustainability** as it pertains to horticulture.

**GLO 11.1:** Describe the impact of **sustainability** on the health and well-being of horticulture workers and their clients, as well as the role of horticulture in society.

SLO 10.11.1.1: Demonstrate knowledge of the concept of sustainability.

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**GLO 11.2:** Describe the horticulture industry's **sustainability practices and environmental impacts**.

SLO 10.11.2.1: Identify the environmental impact of various horticultural practices.

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**GLO 11.3:** Describe **sustainable business practices** within the horticulture industry.

SLO 10.11.3.1: Identify the needs of the present world without compromising the ability of future generations to meet their own needs.

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**Goal 12:** Demonstrate an awareness of the **ethical and legal standards** as they pertain to horticulture.

**GLO 12.1:** Apply the **ethical and legal standards** as they pertain to horticulture.

SLO 10.12.1.1: Identify the ethical and legal expectations related to the horticulture industry.

SLO 10.12.1.2: Demonstrate knowledge of the need for government legislation pertaining to the horticulture industry.

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**Goal 13:** Demonstrate **employability skills** related to horticulture.  
(GHCP D1) (GHCP D4)

**GLO 13.1:** Demonstrate **fundamental employability skills**.

- SLO 10.13.1.1: Arrive on time and be prepared for work.
- SLO 10.13.1.2: Meet deadlines.
- SLO 10.13.1.3: Use time effectively.
- SLO 10.13.1.4: Follow written and oral directions.
- SLO 10.13.1.5: Ask questions for clarification.
- SLO 10.13.1.6: Initiate work independently.
- SLO 10.13.1.7: Work effectively without supervision.
- SLO 10.13.1.8: Complete tasks without supervision.
- SLO 10.13.1.9: Fulfill commitments to self and others.
- SLO 10.13.1.10: Perform tasks to a high standard.
- SLO 10.13.10.11: Cooperate with others.
- SLO 10.13.10.12: Act respectfully towards oneself and others.
- SLO 10.13.10.13: Participate in group activities.
- SLO 10.13.10.14: Dress appropriately for the workplace.
- SLO 10.13.10.15: Demonstrate appropriate site etiquette. (GHCP D3)
- SLO 10.13.10.16: Maintain a clean and organized work area. (A3.3)

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**Goal 14:** Demonstrate an understanding of the **evolution and technological progression of, and the emerging trends in** horticulture.

**GLO 14.1:** Demonstrate an understanding of the **evolution and technological progression of, and the emerging trends in** horticulture.

- SLO 10.14.1.1: Describe the evolution and technological progression of, and the emerging trends in the horticulture industry.
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