

## **AGRI 1600: Introduction to Agricultural Food Systems**

**Remotely offered Winter 2021** (Lectures offered as a hybrid of synchronous and asynchronous via WebEx; Labs offered synchronously via WebEx)

**Prerequisite:** None

**Course description:** Explore agricultural production systems with special focus on the Canadian Prairies. Develop scholarly, social, communication and professional skills to be successful in the application of technical knowledge to food production challenges. Prerequisites: none. Not be held with AGRI 1500 or AGRI 1510.

**Programs:** Open. University 1 course.

**Prerequisite for:** PLNT 2500 (Crop Production), ANSC 2500 (Animal Production)

**Learning outcomes:** On completion of this course, the student will be able to

- Identify the role of agriculture in the world and be able to describe basic agricultural systems;
- Explain scientific concepts of agricultural production systems situated within a broad understanding of food systems;
- Demonstrate foundational knowledge related to the land resource, and crop and animal production systems, with special focus on the Canadian Prairies;
- Identify Indigenous perspectives that are relevant to agricultural practices and food production; including Indigenous knowledge, land tenure, and treaties;
- Apply critical thinking skills to evaluate knowledge in agricultural sciences to contribute to the betterment of society;
- Evaluate information to solve emerging problems and challenges in food production systems on a local, national, and global scale;
- Demonstrate lifelong learning skills by accessing knowledge and skills to keep abreast in agricultural sciences; demonstrate research and information literacy skills; engage in reflective practice; adapt to change;
- Work effectively and respectfully in multidisciplinary and multicultural teams to successfully accomplish a purpose; and
- Be aware of the requirements for achieving appropriate professional designations, and work in inter-professional environments including our ethical and professional responsibilities.

**Students targeted:** This will be a Faculty core first year course for all FAFS students. Note that this will be coordinated with HNSC 1200 (Food Facts and Fallacies), so that Agricultural, Food, and Human Nutritional systems are fully covered between the two courses. It will also be a University 1 course and open to students in other faculties.

**Assessment and Assignments:** Course assessment for Winter 2021 will consist of section quizzes (40%), lab assignments (25%), participation (10%), and a final exam (25%).

**Required text:** None assigned.

**Content:**

**Module 1: Introduction to Agriculture (5 lectures)**

Why Agriculture?; History of Agriculture: Global, Canadian, Prairie; The Prairie and Canadian Context: BioPhysical Environment, Indigenous Knowledge, Evolution of the Prairie Agriculture; Landscapes, Colonialism, and Land Tenure; The Diversity of Production Systems Globally

**Module 2: The Living Land (6 lectures)**

The Fundamental Resource: Basic Components; The Diversity of Soil Types  
Water to Sustain Life; Nutrients and Biogeochemical Cycling  
Soil Biota; Current Issues on the Prairies (e.g., management practices)

**Module 3. Crops: Food from the Sun (6 lectures)**

Fundamentals of Photosynthesis; Nutrients and Water for Crops; The Diversity of Crop Systems; Pests as Competitors: Weeds, Disease, Insects; Crop Management Strategies (e.g., Crop Rotations); Crop Developments and Biotechnology; Current Issues on the Prairies

**Module 4. Animals: Concentrators of Protein (6 lectures)**

The Advantages of Animals; Animal Welfare and Ethics; Animal Production Systems: Poultry, Swine, Dairy, Beef, Other; Current Issues on the Prairies

**Module 5. The Integrated Agroecosystem Approach (6 lectures)**

Agroecosystem life cycles: energy, water and nutrient cycling; Organic Agriculture; Holistic Agricultural Systems; Environmental Impacts of Agriculture; Conservation

**Module 6: Farming for our Future (6 lectures)**

Technology: now and future; Opportunities for new agricultural systems; Threats to our food supply; Confined Production in the Future: Greenhouses, growth rooms and barns; Our Responsibilities: Ethics and Professionalism

**Laboratory Sessions:**

- Lab 1. Academic Integrity, Ethics and Professionalism (mandatory quiz)
- Lab 2. Agriculture library workshop – Library and Web resources (quiz and assignment)
- Lab 3. Agriculture Land Capability and Land Use (assignment)
- Lab 4. Plant Based lab (assignment)
- Lab 5. Animal Based lab (assignment)
- Lab 6. Current Issues: Individual preparation for Debates and Discussion (assignment)
- Lab 7. Current Issues: Group preparation for Debates and Discussion (assignment)
- Lab 8. Current Issues Debate and Discussion Part 1 (presentation)
- Lab 9. Current Issues Debate and Discussion Part 2 (presentation)