Course Information Form (CIF)

Course Code: AGB 200 (IAI AG 904)

Course Title: Introduction to Soil Science

Department: Agricultural Technologies
PCS Code: 1.1 - Baccalaureate/Transfer
CIP Code: 01.1201
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 3-2-4
Credit Hour Distribution:

Lecture: 3	Lab: 2	Clinical: 0	**Total: 4**

General Course Information

Catalog Description

Fundamentals of soil formation, development, texture, structure, color, temperature, moisture, organisms, organic matter, chemical composition, clay minerals, classification, nutrient testing, fertilizer use, conservation, and management. Includes laboratory projects.

General Course Objectives

- To introduce students to the physical fundamentals of soil.
- To provide students with the opportunity to demonstrate correct ways to utilize and manage soils when used for crop production.

Minimum Placement Levels

English	Reading	Math
Placement out of ENG 098	Placement out of CCS 098	Placement into MAT 060

Prerequisites

None

Methods of Evaluation

The minimum methods of evaluation include: 12 quizzes, 13 lab exercises, 1 midterm exam, and 1 final exam.

Instructional Materials and Additional Supplies

The Nature and Properties of Soil, Weil and Brady. Current edition.

Course Content

General Learning Outcomes (GLOs)

- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.
- Technology: Students will demonstrate the ability to evaluate, select, and appropriately use current and emerging tools.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Soil Formation	1. Define the effect of parent material, vegetation, topography, climate, and time on the formation of soils.	3	2	0
Soil Texture, Soil Structure, and Density	1. Recognize soil textural and structural differences. 2. Define their effect on drainage, aeration, fertility, and crop production.	6	4	0
Soil Color	1. Classify soils as to color. 2. Explain soil color's relationship to organic matter content, drainage, aeration, and fertility.	2	2	0
Soil Temperature	1. Define the factors that affect soil temperature. 2. Explain the effect of temperature on plant germination, growth, and development.	2	2	0
Soil Moisture	1. Describe the hydrologic cycle, its relationship to productivity, and the physical and chemical properties and terms associated with leaching, gravitational water, capillary water, hygroscopic water, field capacity, available water, and wilting point.	4	2	0
Soil Organisms	1. Identify the kinds of soil plants and animals, macro- and micro-plants and animals, and factors that influence their development. 2. Explain their effect on organic matter synthesis, accumulation deposition, decay, and nutrient release.	3	2	0
Soil Organic Matter	1. Describe organic matter and explain its origin and sources. 2. Estimate its chemical content, rate of decay, and significance as related to soil physical and chemical properties.	3	2	0
Chemical Composition of Soils	1. Identify the common rocks and minerals in soil parent material. 2. Indicate the relative amounts and the significance of rocks and minerals in soil chemical composition and fertility.	2	2	0
Clay Mineral and Cation Exchange Capacity	1. Recognize the common clay minerals found in soil. 2. Describe clay mineral formation, structure, distribution (geographical, and in the soil profile), and properties, especially as related to cation exchange capacity.	3	2	0
Soil Reaction Liming	1. Define soil reaction, why pH decreases, and why it is important in crop production. 2. Define problem areas as related to excessive acidity or alkalinity. 3. Identify common liming materials, their relative neutralizing values, and their effectiveness. 4. Determine soil lime requirements. 5. Make limestone recommendations for various cropping systems.	6	4	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Identification, Definition, and Quantification of Essential Nutrients, Secondary Nutrients, and Micro-Nutrients; Soil Test Results and Recommendations	1. Identify the essential plant nutrients. 2. Classify nutrients according to quantity required by plants, soil presence, availability, and transformations. 3. Make soil and plant tissue tests. 4. Prescribe soil fertility treatments based on tests, cropping history, and inherent soil nutrient-supplying power.	6	2	0
Soil Classification, Soil Survey, Soil Conservation, Erosion, and Soil Management	1. Describe the nature, purpose, and history of soil classification, especially as related to the management of soils in the Parkland College geographical area.	5	4	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
45	30	0