

Course Code: AGB 117

Course Title: Applicator Equipment Operations I

Department: Agricultural Technologies

Effective Date: Summer 2026

PCS Code: 1.2 - Occupational/Technical Instruction

CIP Code: 01.0205

Repeatability: 0

Credit Hours

Catalog Notation: 2-2-3

Credit Hour Distribution:

Lecture: 2

Lab: 2

Clinical: 0

Total: 3

General Course Information

Catalog Description

Introduction to and application of pesticides and fertilizers using knowledge and general operator skills required of agriculture custom applicator technicians. Pesticide safety, equipment calibrations, product calculations, use of precision technology, and product application emphasized.

General Course Objectives

- Students will understand the content required to pass the General Standards Pesticide exam.
- Students will calculate product rates, demonstrate proper equipment calibrations, utilize precision technologies for chemical/fertilizer applications, and demonstrate proper product applications in the field.

Minimum Placement Levels

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

Prerequisites

Credit in AGB 111 and AGB 113

Methods of Evaluation

The minimum number of evaluation methods include: 5 practical lab exams, 5 quizzes, and 1 final exam.

Instructional Materials and Additional Supplies

None.

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
Custom Operator Standards	<ol style="list-style-type: none"> Describe the role of custom operators in agriculture retail organizations. Define the importance of and professionalism required of a custom operator. Explain the responsibility of a custom operator when operating machinery on the road and making application decisions. Differentiate between the various commercial licenses for chemical applications. Explain the requirements of field recordkeeping. 	2	0	0
Pesticide Safety - Human Pesticide Protection	<ol style="list-style-type: none"> Define the human routes of pesticide poisoning, how toxicity is measured, and factors that make a pesticide hazardous. Match signal words to the toxicity level. List the personal protective equipment (PPE) required when applying and mixing/loading pesticides. Select the appropriate PPE for given pesticides. Understand the proper procedures for pesticide loading and cleanup. 	3	2	0
Pesticides in the Environment	<ol style="list-style-type: none"> Describe the implications of movement of pesticides by water and air (drift). Develop a drift management plan to reduce or eliminate off-target pesticide applications. Choose the correct drift management strategy including proper drift control measures for various simulated field situations. 	3	2	0
Labels and Labeling	<ol style="list-style-type: none"> Read and follow pesticide labels. Interpret product information, precautionary statements, and directions for use on a pesticide label. 	2	2	0
Components and Systems	<ol style="list-style-type: none"> Describe the functions of sprayer and fertilizer components on equipment. Load pesticides and/or fertilizer from a tender delivery system. Determine when equipment tanks need to be cleaned. Describe the procedure for properly cleaning out equipment tanks. Assess equipment tanks to determine adequate cleaning. 	5	4	0
Calibration and Calculations	<ol style="list-style-type: none"> Describe the importance of calibration in pesticide and fertilizer applications. Describe the implications of improper calibrations. List the factors that influence rate applied per acre. Calculate flow rate given a set of parameters. Select the appropriate nozzle for application. Calculate the appropriate amount of pesticide formulation. Calculate area of application. Perform chemical and fertilizer calibrations on application equipment. 	5	6	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Precision Agriculture	<ol style="list-style-type: none"> 1. Utilize multi-function field computers for application control, variable rate fertilizer, guidance, recordkeeping, mapping, and wireless data transfer. 2. Implement variable rate fertilizer recommendations using field computer. 3. Perform wireless data transfer of incoming and outgoing files. 4. Set up and perform auto-guidance using GPS technologies. 	4	6	0
Fertilizer and Chemical Applications	<ol style="list-style-type: none"> 1. Implement strategies for spraying/fertilizer application. 2. Assess field situations to determine application. 3. Utilize application equipment to apply fertilizer. 4. Read and interpret field prescription maps, plat maps, and work orders. 5. Prepare for the general standards operator exam. 6. Perform safe operations of application equipment. 	6	8	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
30	30	0