## 01.0000   AGRICULTURE, GENERAL

(Formerly 02.0101 Agriculture/Agricultural Sciences, General)

An instructional program that generally describes the principles and practices of agricultural research and production and may prepare individuals to apply such knowledge and skills to the solution of practical agricultural problems. This program includes instruction in basic animal, plant, soil science and mechanization, animal husbandry, plant cultivation, soil conservation and mechanical technology. Instruction may include an emphasis in aquaculture, hydroponics, food science and/or environmental science.

Academic Courses (Approved by PDE)

* Environmental Science is listed as one of the specific program of instruction for this CIP.
* Biology- Study of basic animal and plant structure and function along with basic cell functions and scientific research is needed as foundations for in-depth study in the field of agriculture
* Chemistry – Agriculture needs to deal with the composition, structure and properties of inorganic and organic compounds in the process of raising and processing agricultural products.
* Earth Science – The course increases the student’s knowledge of Earth science including soil, which is listed in this CIP.
* Geometry –Principles of geometry are used in Mechanical Technology which is listed in this CIP.

*Additional Academic Courses that could be considered:* **(Only after the local entity shows a direct connection to the local agriculture curriculum and receives approval from the local occupational advisory committee)**

* *Drafting & / or Computer Aided Design – These courses form a foundation for mechanical technology, which is listed as one of the specific program of instruction for this CIP.*
* *English – Research – A program that describes the principles and practices of agricultural Research is listed as one of the specifics of this CIP*
* *Family and Consumer Science – Foods Course – Food science is listed as one of the specific program of instruction for this CIP.*
* *Speech & / or Creative Writing – These courses help students be able to write and explain solutions of practical agricultural problems, which is listed in the CIP.*
* *Other courses – Any other accredited (PDE) course which provides supporting and foundational knowledge to the CIP that has been approved through the CATS system.*

## 01.0105   AGRICULTURAL FARM SUPPLIES RETAILING AND WHOLESALING

(Formerly 01.0501 Agricultural Supplies Retailing and Wholesaling)

An instructional program that generally prepares individuals to sell supplies for agricultural production and processing, provide agricultural services and purchase and market agricultural products.

Academic Courses (Approved by PDE)

* Biology – Study of basic animal and plant structure and function along with basic cell functions and scientific research is needed as foundations for in-depth study in the field of agriculture.

* Accounting - The CIP title deals with retailing and wholesaling. An Accounting course deals with recording business transactions (retail and wholesale).
* Economics - This CIP deals with business in which you need to understand supply and demand, determination of pricing, and market structures. All of which is taught in Economics courses.

*Additional Academic Courses that could be considered:* **(Only after the local entity shows a direct connection to the local agriculture curriculum and receives approval from the local occupational advisory committee)**

* *Family and Consumer Science- Foods course - Study of food processing techniques is listed as a program of study in this CIP Code. Understanding of food process techniques, along with storage and contamination of foods being processed.*

* *Other courses – Any other accredited (PDE) course which provides supporting and foundational knowledge to the CIP that has been approved through the CATS system.*

## 01.0201   AGRICULTURAL MECHANIZATION, GENERAL

(Formerly 01.0501 Agricultural Supplies Retailing and Wholesaling)

An instructional program that prepares individuals in a general way to sell, select and service agriculture or agribusiness technical equipment and facilities including computers, specialized software, power units, machinery, equipment, structures and utilities. This program includes instruction in agriculture power units, the planning and selection of materials for the construction of agriculture facilities; safe mechanical practices associated with water conservation, erosion control and data processing systems.

Academic Courses (Approved by PDE)

* Trigonometry – Foundation is needed in the design and construction of livestock and storage structures used in agriculture.

* Physics – The basic study of energy, heat, electricity, magnetism and atomic structure is needed for power, machinery, equipment and structure units.
* Computer Science – Agricultural mechanization CIP states that students need to understand computers, software and data processing systems as part of this program of study.
* Drafting & / or CAD – Helps form a foundation in the design and construction of livestock and storage structures used in agriculture.
* Environmental Science – Water conservation is listed in this CIP and it is a major topic of any Environmental Science course.
* Geometry- Teaches skills in area and volume which is very important to the design and construction of livestock and storage structures used in agriculture.

*Additional Academic Courses that could be considered:* **(Only after the local entity shows a direct connection to the local agriculture curriculum and receives approval from the local occupational advisory committee)**

* *Business Education – The basic study of Business would help the student in the selling of agricultural technical Equipment which is stated in this CIP.*
* *Other courses – Any other accredited (PDE) course which provides supporting and foundational knowledge to the CIP that has been approved through the CATS system*

**01.0301   AGRICULTURAL PRODUCTIONS OPERATIONS, GENERAL**

(Formerly 01.0301 Agricultural Production Workers and Managers, General)

An instructional program that generally prepares individuals to apply scientific knowledge and methods in the planning related to and the economical use of facilities, land, water, machinery, chemicals, finance and labor in the production of plant and animal products. Activities include classroom instruction, agricultural mechanics instruction and laboratory experiences in and out of school including farms, agribusiness and other agriculturally related establishments.

Academic Courses (Approved by PDE)

* Environmental Science – is listed as one of the specific program of instruction for this CIP.
* Biology – Study of basic animal and plant structure and function along with basic cell functions and scientific research is needed as foundations for in-depth study in the field of agriculture.

* Chemistry – Agriculture deals with the composition, structure, and properties of inorganic and organic compounds in the process of raising and processing agricultural products.
* Economics / Accounting – CIP states it prepares students in the economical use of facilities, land, water, machinery, chemicals, finance and labor.
* Business Law- Study of history of law and the U.S. Court system. Specialized areas of business law directly pertaining to students and their role in society. The CIP states activities include agribusiness and other agriculturally related establishments.
* Drafting / CAD – Helps form a foundation in the design and construction of livestock and storage structures used in agriculture. The CIP states that it helps provide scientific knowledge and method in the planning of facilities and machinery in the production of plant and animal products.
* Geometry- Teaches skills in area and volume which is very important to the design and construction of livestock and storage structures used in agriculture.
* Trigonometry – Foundation is needed in the design and construction of livestock and storage structures used in agriculture.

*Additional Academic Courses that could be considered:* **(Only after the local entity shows a direct connection to the local agriculture curriculum and receives approval from the local occupational advisory committee)**

* *Foreign Language – CIP states to prepare individuals...and methods in the planning related to the labor in the production of plant and animal products. A lot of the labor force used in agriculture (Dairy and vegetable / fruit production) is Spanish speaking individuals.*
* *Other courses – Any other accredited (PDE) course which provides supporting and foundational knowledge to the CIP that has been approved through the CATS system.*

**01.0401   AGRICULTURAL AND FOOD PRODUCTS PROCESSING**

(Formerly 01.0401 Agricultural and Food Products Processing Operations and Management)

An instructional program having a combination of subject matter and learning experiences designed to prepare individuals to receive, process and store food and non-food products and to inspect those products preparatory to marketing. This program includes instruction in processes, scientific principles and management decisions concerned with agricultural production of agriculture-related processing and storage techniques. The groups of food products include: (1) meat, fish, poultry and eggs; (2) Dairy products; (3) fruits and vegetables; (4) cereal grains; and (5) other foods and beverages. The non-food products include cotton, tobacco and wool. Instruction may be provided in any or all groups of these products.

Academic Courses (Approved by PDE)

* Biology – Study of basic animal and plant structure and function along with basic cell functions and scientific research is needed as foundations for in-depth study in the field of agriculture.

* Chemistry – Agriculture deals with the composition, structure, and properties of inorganic and organic compounds in the process of raising and processing agricultural products.
* Family and Consumers Science – Understanding of food process techniques, along with storage and contamination of foods being processed.

*Additional Academic Courses that could be considered:* **(Only after the local entity shows a direct connection to the local agriculture curriculum and receives approval from the local occupational advisory committee)**

* *Business Education – The basic study of Business would help the student in the management decisions and with marketing which is stated in this CIP.*
* *Other courses – Any other accredited (PDE) course which provides supporting and foundational knowledge to the CIP that has been approved through the CATS system.*

**01.0601   APPLIED HORTICULTURE/HORTICULTURAL OPERATIONS, GENERAL**

(Formerly 01.0601 Horticulture Services Operations and Management, General)

An instructional program having a combination of organized subject matter and practical experiences that generally prepares individuals to produce, process and market plants, shrubs and trees used principally for ornamental, recreational and aesthetic purposes and to establish, maintain and manage horticultural enterprises. Instruction emphasizes knowledge, understanding and application important to establishing, maintaining and managing horticultural enterprises such as arboriculture, floriculture, greenhouse operation and management, landscaping, nursery operation and management and turf management.

Academic Courses (Approved by PDE)

* Trigonometry – Foundation is needed in the design and construction of livestock and storage structures used in agriculture.
* Physics – The study of energy, heat, electricity, magnetism and atomic structure is needed for power, machinery, equipment and structure units.
* Biology – Study of basic animal and plant structure and function along with basic cell functions and scientific research is needed as foundations for in-depth study in the field of agriculture.

* Chemistry – Agriculture deals with the composition, structure, and properties of inorganic and organic compounds in the process of raising and processing agricultural products.
* Environmental Science – Is listed as one of the specific program of instruction for this CIP.
* Geometry- Teaches skills in area and volume which is very important to the design and construction of livestock and storage structures used in agriculture.

*Additional Academic Courses that could be considered:* **(Only after the local entity shows a direct connection to the local agriculture curriculum and receives approval from the local occupational advisory committee)**

* *Foreign Language – CIP states to Prepare individuals to establish, maintains and manages horticultural enterprises. A lot of the labor force used in Horticultural enterprises is Spanish speaking individuals.*
* *Business Education – The basic study of Business would help the student in the Maintaining and managing horticultural enterprises which is stated in this CIP.*
* *Other courses – Any other accredited (PDE) course which provides supporting and foundational knowledge to the CIP that has been approved through the CATS system.*

**01.5999   AGRICULTURE/NATURAL RESOURCES TECHNOLOGY**

A cluster industry/occupational program that provides for a sequence of secondary technical core planned courses in Tech Prep. This program prepares individuals to apply knowledge and skills in the agricultural field. Instruction is provided in the basic skills in a variety of areas associated with agriculture such as agricultural business and production, forestry, agricultural mechanization, horticulture services, agriculture sciences, and/or conservation and renewable natural resources. Instruction includes but is not limited to computer science; plant, animal and soil sciences; principles of ecology and resource management; forestry; hydrology; principles of electronics; blueprint reading; and engine maintenance and repair.

Academic Courses (Approved by PDE)

* Physics – The study of energy, heat, electricity, magnetism and atomic structure is needed for power, machinery, equipment and structure units.
* Environmental Science – Is listed as one of the specific program of instruction for this CIP.
* Ecology – Interrelationship of organisms and their environments along with the consequences dealing with man’s activities
* Biology - Study of basic animal and plant structure and function along with basic cell functions and scientific research is needed as foundations for in-depth study in the field of agriculture.

* Chemistry – Agriculture deals with the composition, structure and properties of inorganic and organic compounds in the process of raising and processing agricultural products. This CIP state instruction is not limited to plant, animal and soil sciences.
* Computer Science – Agriculture / Natural Resources Technology CIP states that instruction includes but is not limited to Computer Science as part of this program of study.

*Additional Academic Courses that could be considered:* **(Only after the local entity shows a direct connection to the local agriculture curriculum and receives approval from the local occupational advisory committee)**

* *Drafting / CAD –The CIP states that Instruction includes but is not limited to principles of electronics; blueprint reading and engine maintenance and repair. All or some of which is studied in a drafting / CAD course.*
* *Other courses – Any other accredited (PDE) course which provides supporting and foundational knowledge to the CIP that has been approved through the CATS system.*
  1. **AGRICULTURE, AGRICULTURE OPERATIONS AND RELATED SCIENCES, OTHER**

(Formerly 01.9999 Agricultural Business / Production, Other)

Any instructional program in agriculture, agricultural operations and related sciences not available in other CIP codes in the Agriculture, Food and Natural Resources cluster.

Academic Courses (Approved by PDE)

* Environmental Science – Is listed as one of the specific program of instruction for this CIP.
* Biology - Study of basic animal and plant structure and function along with basic cell functions and scientific research is needed as foundations for in-depth study in the field of agriculture.

* Chemistry – Agriculture deals with the composition, structure, and properties of inorganic and organic compounds in the process of raising and processing agricultural products.

*Additional Academic Courses that could be considered:* **(Only after the local entity shows a direct connection to the local agriculture curriculum and receives approval from the local occupational advisory committee)**

* *Other courses – Any other accredited (PDE) course which provides supporting and foundational knowledge to the CIP that has been approved through the CATS system.*

**03.0299 NATURAL RESOURCES MANAGEMENT AND POLICY, OTHER**

(Formerly 03.0299 Natural Resources Management and Protective Services, Other)

An instructional program having a combination of subject matter and planned learning experiences concerned with the principles and processes involved in the conservation, protection and/or improvement of natural resources found in the environment such as air, forests, soil, water, fish, plants and wildlife for economic and recreational purposes. Instruction also emphasizes such factors as the establishment, management and operation of forest lands for recreational purposes.

Academic Courses (Approved by PDE)

* Environmental Science – Is listed as one of the specific program of instruction for this CIP.
* Physics – The basic study of energy, heat, electricity, magnetism and atomic structure is needed for power, machinery, equipment and structure units.
* Ecology – Interrelationship of organisms and their environments along with the consequences dealing with man’s activities.
* Business Law– The basic study of Law would help the student in the policy making which is stated in this CIP title.

* Chemistry – Agriculture deals with the composition, structure, and properties of inorganic and organic compounds in the process of raising and processing agricultural products. This CIP states that it deals with subject matter such as air, soil and water.

*Additional Academic Courses that could be considered:* **(Only after the local entity shows a direct connection to the local agriculture curriculum and receives approval from the local occupational advisory committee)**

* *Business Education – The basic study of Business would help the student in the management and operation which is stated in this CIP.*
* *Other courses – Any other accredited (PDE) course which provides supporting and foundational knowledge to the CIP that has been approved through the CATS system.*

**03.0511   FORESTRY TECHNOLOGY/TECHNICIAN**

(Formerly 03.0401 Forest Harvesting and Production Technology/Technician)

An instructional program having a combination of subject matter and experiences that prepares individuals to assist foresters and to produce, protect and manage timber and specialty forest crops; maintain, safely operate and repair related equipment and machinery; harvest and transplant trees as a crop; select, grade and market raw materials for converting into a variety of consumer goods; and utilize the forest for multiple purposes as game preserves and recreation.

Academic Courses (Approved by PDE)

* Environmental Science – Is listed as one of the specific program of instruction for this CIP.
* Biology - Study of basic animal and plant structure and function along with basic cell functions and scientific research is needed as foundations for in-depth study in the field of agriculture.

* Chemistry – Agriculture deals with the composition, structure, and properties of inorganic and organic compounds in the process of raising and processing agricultural products.
* Trigonometry – Foundation is needed in the design and layout of timber stands and mapping of area.
* Ecology – Interrelationship of organism and their environments along with the consequences dealing with man’s activities.

*Additional Academic Courses that could be considered:* **(Only after the local entity shows a direct connection to the local agriculture curriculum and receives approval from the local occupational advisory committee)**

* *Business Education – The basic study of Business would help the student in the grading and marketing of raw materials which is stated in this CIP.*
* *Other courses – Any other accredited (PDE) course which provides supporting and foundational knowledge to the CIP that has been approved through the CATS system.*

**03.0599   FORESTRY, OTHER**

(Formerly 03.0405 Logging/Timber Harvesting)

An instructional program provides classroom, laboratory and field experiences necessary to develop skills, knowledge and attitudes required to enter those occupations that process standing timber into lumber. Students learn to safely operate wood cutting equipment such as chain saws, shears, head saws, band saws, edgers, cutoff saws and chippers; operate wood handling and transporting equipment such as skidders, crawlers, loaders, forklifts and log trucks; operate debarking, processing and kiln drying equipment; maintain and repair logging equipment and machinery; and identify kinds of wood and make value judgments concerning their quantity and quality.

Academic Courses (Approved by PDE)

* Environmental Science – Is listed as one of the specific program of instruction for this CIP.
* Biology - Study of basic animal and plant structure and function along with basic cell functions and scientific research is needed as foundations for in-depth study in the field of agriculture.

* Chemistry – Agriculture deals with the composition, structure, and properties of inorganic and organic compounds in the process of raising and processing agricultural products.
* Trigonometry – Foundation is needed in the design and layout of timber stands and mapping of area.
* Ecology – Interrelationship of organism and their environments along with the consequences dealing with man’s activities.

*Additional Academic Courses that could be considered:* **(Only after the local entity shows a direct connection to the local agriculture curriculum and receives approval from the local occupational advisory committee)**

* *Business Education – CIP states that students learn to make value judgments concerning wood quantity and quality. These are the business aspects of this CIP.*
* *Other courses – Any other accredited (PDE) course which provides supporting and foundational knowledge to the CIP that has been approved through the CATS system.*