

FAEIS Agriculture CIPS with Definitions

Content Taken from the National Center for Education Statistics Classification of Instructional Programs - 2010

01 AGRICULTURE, AGRICULTURE OPERATIONS, AND RELATED SCIENCES. (No substantive changes)
Instructional programs that focus on agriculture and related sciences and that prepare individuals to apply specific knowledge, methods, and techniques to the management and performance of agricultural operations.

01.00 Agriculture, General. (No substantive changes)
Instructional content is defined in code 01.0000.

01.0000 Agriculture, General. (No substantive changes)
A program that focuses on the general principles and practice of agricultural research and production and that may prepare individuals to apply this knowledge to the solution of practical agricultural problems. Includes instruction in basic animal, plant, and soil science; animal husbandry and plant cultivation; soil conservation; and agricultural operations such as farming, ranching, and agricultural business.
See also: 14.0301 - Agricultural Engineering.

01.01 Agricultural Business and Management. (No substantive changes)
Instructional content for this group of programs is defined in codes 01.0101 - 01.0199.

01.0101 Agricultural Business and Management, General. (No substantive changes)
A general program that focuses on modern business and economic principles involved in the organization, operation, and management of agricultural enterprises.

01.0102 Agribusiness/Agricultural Business Operations. (No substantive changes)
A program that prepares individuals to manage agricultural businesses and agriculturally related operations within diversified corporations. Includes instruction in agriculture, agricultural specialization, business management, accounting, finance, marketing, planning, human resources management, and other managerial responsibilities.

Examples:

- Agricultural Systems Management

01.0103 Agricultural Economics. (No substantive changes)
A program that focuses on the application of economics to the analysis of resource allocation, productivity, investment, and trends in the agricultural sector, both domestically and internationally.

Includes instruction in economics and related subfields as well as applicable agricultural fields.
See also: 03.0204 - Natural Resource Economics.

01.0104 Farm/Farm and Ranch Management. (No substantive changes)

A program that prepares individuals to manage farms, ranches, and similar enterprises. Includes instruction in applicable agricultural specialization, business management, accounting, taxation, capitalization, purchasing, government programs and regulations, operational planning and budgeting, contracts and negotiation, and estate planning.

01.0105 Agricultural/Farm Supplies Retailing and Wholesaling. (No substantive changes)

A program that prepares individuals to sell agricultural products and supplies, provide support services to agricultural enterprises, and purchase and market agricultural products. Includes instruction in basic business management, marketing, retailing and wholesaling operations, and applicable principles of agriculture and agricultural operations.

01.0106 Agricultural Business Technology. (No substantive changes)

A program that prepares individuals to perform specialized support functions related to agricultural business offices and operations and to operate agricultural office equipment, software, and information systems. Includes instruction in basic agricultural business principles, office management, equipment operation, standard software, and database management.

01.0199 Agricultural Business and Management, Other. (No substantive changes)

Any instructional program in agricultural business and management not listed above.

01.02 Agricultural Mechanization. (No substantive changes)

Instructional content for this group of programs is defined in codes 01.0201 - 01.0299.

01.0201 Agricultural Mechanization, General. (No substantive changes)

A program that generally prepares individuals to sell, select, and service agricultural or agribusiness technical equipment and facilities, including computers, specialized software, power units, machinery, equipment structures, and utilities. Includes instruction in agricultural power systems, planning and selecting materials for the construction of support facilities, mechanical practices associated with irrigation and water conservation, erosion control, and agricultural data processing systems.

01.0204 Agricultural Power Machinery Operation. (No substantive changes)

A program that prepares individuals to operate specialized farm, ranch, and agribusiness power equipment of a stationary, mobile, and/or hand-operated nature. Includes instruction in operating specialized equipment such as terrestrial and airborne crop-spraying equipment; tractors and hauling equipment; planting and harvesting equipment; cutting equipment; power sources and systems for silos, irrigation, pumping, and applications such as dairy, feeding and shearing operations; processing equipment; and applicable electrical, mechanical, and safety principles.

See also: 49.0202 - Construction/Heavy Equipment/Earthmoving Equipment Operation.

01.0205 Agricultural Mechanics and Equipment/Machine Technology. (No substantive changes)

A program that prepares individuals to maintain and repair specialized farm, ranch, and agribusiness power equipment and vehicles. Includes instruction in the principles of diesel, combustion, electrical, steam, hydraulic, and mechanical systems and their application to the maintenance of terrestrial and airborne crop-spraying equipment; tractors and hauling equipment; planting and harvesting equipment; cutting equipment; power sources and systems for silos; irrigation and pumping equipment; dairy, feeding, and shearing operations; and processing systems.

Examples:

- Agricultural Equipment Mechanic
- Agricultural Equipment Technician
- Agricultural Machinery Technician
- Farm Equipment Service Technician

01.0299 Agricultural Mechanization, Other. (No substantive changes)

Any instructional program in agricultural mechanization not listed above.

Examples:

- Agricultural Irrigation

01.03 Agricultural Production Operations. (No substantive changes)

Instructional content for this group of programs is defined in codes 01.0301 - 01.0399.

01.0301 Agricultural Production Operations, General. (No substantive changes)

A program that focuses on the general planning, economics, and use of facilities, natural resources, equipment, labor, and capital to produce plant and animal products, and that may prepare individuals for work in farming, ranching, and agribusiness.

01.0302 Animal/Livestock Husbandry and Production. (No substantive changes)

A program that prepares individuals to select, breed, care for, process, and market livestock and small farm animals. Includes instruction in basic animal science, animal nutrition, and animal health as applied to various species and breeds; design and operation of housing, feeding, and processing facilities; and related issues of safety, applicable regulations, logistics, and supply.

01.0303 Aquaculture. (No substantive changes)

A program that prepares individuals to select, culture, propagate, harvest, and market domesticated fish, shellfish, and marine plants, both freshwater and saltwater. Includes instruction in the basic principles of aquatic and marine biology; health and nutrition of aquatic and marine life; design and operation of fish farms, breeding facilities, culture beds, and related enterprises; and related issues of safety, applicable regulations, logistics, and supply.

01.0304 Crop Production. (No substantive changes)

A program that prepares individuals to cultivate grain, fiber, forage, oilseed, fruits and nuts, vegetables, and other domesticated plant products. Includes instruction in basic principles of plant science, health, and nutrition as applied to particular species and breeds; soil preparation and irrigation; pest management; planting and harvesting operations; product marketing; and applicable issues of safety, regulation, logistics, and supply.

01.0306 Dairy Husbandry and Production. (No substantive changes)

A program that prepares individuals to manage the selection and care of dairy animals and associated dairy farm and processing facilities and operations. Includes instruction in basic animal and dairy science; dairy animal nutrition and health; design and operation of dairy housing, feeding, and processing facilities and equipment; and related issues of safety, sanitation, shipping and handling, and applicable regulations.

01.0307 Horse Husbandry/Equine Science and Management. (No substantive changes)

A program that prepares individuals to manage the selection, breeding, care, and maintenance of work, athletic, and show horses; and to manage horse farms, stables, tracks and related equipment and operations. Includes instruction in applicable principles of animal science, care, and health; stable and track management; design and operation of facilities and equipment; and related issues such as regulations, business management; and logistics.

01.0308 Agroecology and Sustainable Agriculture. (New)

A program that focuses on agricultural principles and practices that, over the long term, enhance environmental quality, make efficient use of nonrenewable resources, integrate natural biological cycles and controls, and are economically viable and socially responsible; and that may prepare individuals to apply this knowledge to the solution of agricultural and environmental problems. Includes instruction in principles of agroecology, crop and soil sciences, entomology, horticulture, animal science, weed science and management, soil fertility and nutrient cycling, applied ecology, agricultural economics, and rangeland ecology and watershed management.

Examples:

- Agroecology
- Sustainable Agriculture
- Organic Farming

See also: 30.3301 - Sustainability Studies.

01.0309 Viticulture and Enology. (New)

A program that focuses on the application of scientific and agribusiness principles to the production of grapes, the making of wine, and the wine business. Includes instruction in grapes and wines of the world; grape production; winemaking technology; plant biology; chemistry; food science, safety, and packaging; soil science; pest management; and marketing and business management.

Examples:

- Viticulture
- Enology

01.0399 Agricultural Production Operations, Other. (No substantive changes)

Any instructional program in agricultural production operations not listed above.

01.04 Agricultural and Food Products Processing. (No substantive changes)

Instructional content is defined in code 01.0401.

01.0401 Agricultural and Food Products Processing. (No substantive changes)

A program that prepares individuals to receive, inspect, store, process, and package agricultural products in the form of human food consumables, animal or plant food, or other industrial products. Includes instruction in the nutrient and industrial properties of various agricultural products; logistics and storage procedures; chemical and mechanical processing operations; packaging; safety and health requirements; and related technical and business principles.

01.05 Agricultural and Domestic Animal Services. (No substantive changes)

Instructional content for this group of programs is defined in codes 01.0504 - 01.0599.

01.0504 Dog/Pet/Animal Grooming. (No substantive changes)

A program that prepares individuals to provide cosmetic services for household pets, show animals, work animals and animal athletes. Includes instruction in skin, coat, and pelt grooming and styling; skin care; hoof, nail, and claw care; animal massage; minor first aid and veterinary referral; animal grooming products and applications; health and safety; and applicable regulations.

01.0505 Animal Training. (No substantive changes)

A program that prepares individuals to teach and exercise animals for leisure, sport, show, and professional purposes. Includes instruction in animal psychology, health, and safety; human-animal interaction; learning and behavior styles associated with different breeds and species; and the technical and pedagogical aspects of training animals for such specific functions as obedient household pets, performing show animals, animal athletes, care-giving (e.g., seeing-eye dogs), search and rescue, and police/security work.

01.0507 Equestrian/Equine Studies. (No substantive changes)

A program that focuses on the horse, horsemanship, and related subjects and prepares individuals to care for horses and horse equipment; ride and drive horses for leisure, sport, show, and professional purposes; and manage the training of horses and riders. Includes instruction in horse breeding, nutrition, health, and safety; history of the horse and horsemanship; horse development and training; riding and equestrian technique; stable, paddock, and track management; and equipment maintenance and repair.

01.0508 Taxidermy/Taxidermist. (No substantive changes)

A program that prepares individuals to reproduce life-like three-dimensional representations of living animals for permanent display using elements of the deceased specimen(s) as well as artificial materials, and to manage taxidermy services and businesses. Includes instruction in specimen grading and selection, capping and fleshing, preservation procedures, tanning, drying, measurements, form and armature construction, carpentry and woodworking, molding and casting, drawing, sculptural techniques, painting and finishing techniques, basic business operations, customer communications, and applicable laws and regulations.

01.0599 Agricultural and Domestic Animal Services, Other. (No substantive changes)

Any instructional program in agricultural and domestic animal services not listed above.

01.06 Applied Horticulture and Horticultural Business Services. (No substantive changes)

Instructional content for this group of programs is defined in codes 01.0601 - 01.0699.

01.0601 Applied Horticulture/Horticulture Operations, General. (No substantive changes)

A program that focuses on the general production and processing of domesticated plants, shrubs, flowers, foliage, trees, groundcovers, and related plant materials; the management of technical and business operations connected with horticultural services; and the basic scientific principles needed to understand plants and their management and care.

01.0603 Ornamental Horticulture. (No substantive changes)

A program that focuses on domesticated plants and plant materials used for decorative and recreational applications and prepares individuals to breed, grow, and utilize ornamental plant varieties for commercial and aesthetic purposes. Includes instruction in applicable plant science subjects, the environmental design and artistic aspects of horticultural product usage, and the management of horticultural operations.

01.0604 Greenhouse Operations and Management. (No substantive changes)

A program that prepares individuals to produce, store, and deliver plant species in controlled indoor environments for wholesale, commercial, research, or other purposes. Includes instruction in applicable principles of plant science; climate, irrigation, and nutrition control equipment operation and maintenance; facilities management; inventory control; safety procedures; and personnel supervision.

01.0605 Landscaping and Groundskeeping. (No substantive changes)

A program that prepares individuals to manage and maintain indoor and/or outdoor ornamental and recreational plants and groundcovers and related conceptual designs established by landscape architects, interior designers, enterprise owners or managers, and individual clients. Includes instruction in applicable principles of horticulture, gardening, plant and soil irrigation and nutrition, turf maintenance, plant maintenance, equipment operation and maintenance, personnel supervision, and purchasing.

Examples:

- Greenspace

See also: 04.0601 - Landscape Architecture.

01.0606 Plant Nursery Operations and Management. (No substantive changes)

A program that prepares individuals to operate and manage outdoor plant farms, tree and shrub nurseries, and related facilities that develop domesticated plant products for propagation, harvesting, and transplantation. Includes instruction in applicable principles of plant science, farm and business management, nursery operations, equipment operation and maintenance, safety procedures, and personnel supervision.

01.0607 Turf and Turfgrass Management. (No substantive changes)

A program that focuses on turfgrasses and related groundcover plants and prepares individuals to develop ornamental or recreational grasses and related products; plant, transplant, and manage grassed areas; and to produce and store turf used for transplantation. Includes instruction in applicable plant sciences, genetics of grasses, turf science, use analysis, turf management, and related economics.

Examples:

- Golf and Sports Turf Management

01.0608 Floriculture/Floristry Operations and Management. (No substantive changes)

A program that prepares individuals to operate and manage commercial and contract florist enterprises, supply and delivery services, and flower catering services. Includes instruction in the applicable principles of plant science; purchasing, storage, and delivery systems; floral design and arranging; and principles of business management.

01.0699 Applied Horticulture/Horticultural Business Services, Other. (No substantive changes)

Any instructional program in horticultural service operations not listed above.

Examples:

- Arborist

- Arboriculture

01.07 International Agriculture. (No substantive changes)

Instructional content is defined in code 01.0701.

01.0701 International Agriculture. (No substantive changes)

A program that focuses on the application of agricultural management and scientific principles to the problems of global food production and distribution, and to the study of the agricultural systems of other countries. Includes instruction in agricultural economics; comparative agricultural systems; international agribusiness and law; third-world development studies and economic development; and global applications of climate, soil, water resources, ecological and environmental studies, and animal and plant sciences.

See also: 45.0604 - Development Economics and International Development.

01.08 Agricultural Public Services. (No substantive changes)

Instructional content for this group of programs is defined in codes 01.0801 - 01.0899.

01.0801 Agricultural and Extension Education Services. (No substantive changes)

A program that prepares individuals to provide referral, consulting, technical assistance, and educational services to gardeners, farmers, ranchers, agribusinesses, and other organizations. Includes instruction in basic agricultural sciences, agricultural business operations, pest control, adult education methods, public relations, applicable state laws and regulations, and communication skills.

See also: 13.1301 - Agricultural Teacher Education., 45.1401 - Rural Sociology.

01.0802 Agricultural Communication/Journalism. (No substantive changes)

A program that prepares individuals to apply journalistic, communication, and broadcasting principles to the development, production, and transmittal of agricultural information. Includes instruction in basic journalism, broadcasting, film/video, and communication techniques; the production of technically specialized information products for agricultural audiences; and the principles of agricultural sciences and business operations needed to develop and communicate agricultural subject matter in effective ways.

01.0899 Agricultural Public Services, Other. (No substantive changes)

Any instructional program in general agricultural sciences and related services not listed above.

01.09 Animal Sciences. (No substantive changes)

Instructional content for this group of programs is defined in codes 01.0901 - 01.0999.

01.0901 Animal Sciences, General. (No substantive changes)

A general program that focuses on the scientific principles that underlie the breeding and husbandry of agricultural animals, and the production, processing, and distribution of agricultural animal products. Includes instruction in the animal sciences, animal husbandry and production, and agricultural and food products processing.

See also: 26.0701 - Zoology/Animal Biology.

01.0902 Agricultural Animal Breeding. (No substantive changes)

A program that focuses on the application of genetics and genetic engineering to the improvement of agricultural animal health, the development of new animal breeds, and the selective improvement of agricultural animal populations. Includes instruction in genetics, genetic engineering, population genetics, animal health, animal husbandry, and biotechnology.

See also: 26.0804 - Animal Genetics.

01.0903 Animal Health. (No substantive changes)

A program that focuses on the application of biological and chemical principles to the study, prevention, and control of diseases in agricultural animal populations. Includes instruction in environmental science, pharmacology, animal population studies, genetics, animal physiology and diet, disease prevention, treatment methodologies, and laboratory and testing procedures.

01.0904 Animal Nutrition. (No substantive changes)

A program that focuses on the biology and chemistry of proteins, fats, carbohydrates, water, vitamins, and feed additives as related to animal health and the production of improved animal products. Includes instruction in nutrition science, animal health and physiology, biochemistry, cellular and molecular biology, animal husbandry, and food science.

01.0905 Dairy Science. (No substantive changes)

A program that focuses on the application of biological and chemical principles to the production and management of dairy animals and the production and handling of dairy products. Includes instruction in animal sciences, nutrition sciences, food science and technology, biochemistry, and related aspects of human and animal health and safety.

01.0906 Livestock Management. (No substantive changes)

A program that focuses on the application of biological and chemical principles to the production and management of livestock animals and the production and handling of meat and other products. Includes instruction in animal sciences, range science, nutrition sciences, food science and technology, biochemistry, and related aspects of human and animal health and safety.

Examples:

- Livestock Management
- Meat Science

01.0907 Poultry Science. (No substantive changes)

A program that focuses on the application of biological and chemical principles to the production and management of poultry animals and the production and handling of poultry products. Includes instruction in avian sciences, nutrition sciences, food science and technology, biochemistry, hatchery design, and related aspects of human and animal health and safety.

01.0999 Animal Sciences, Other. (No substantive changes)

Any instructional program in the animal sciences not listed above.

01.10 Food Science and Technology. (No substantive changes)

Instructional content for this group of programs is defined in codes 01.1001 - 01.1099.

01.1001 Food Science. (No substantive changes)

A program that focuses on the application of biological, chemical, and physical principles to the study of converting raw agricultural products into processed forms suitable for direct human consumption, and

the storage of such products. Includes instruction in applicable aspects of the agricultural sciences, human physiology and nutrition, food chemistry, agricultural products processing, food additives, food preparation and packaging, food storage and shipment, and related aspects of human health and safety including toxicology and pathology.

Examples:

- Food Safety

See also: 12.0509 - Culinary Science/Culinology., 19.0501 - Foods, Nutrition, and Wellness Studies, General.

01.1002 Food Technology and Processing. (No substantive changes)

A program that focuses on the application of chemical, physical, and engineering principles to the development and implementation of manufacturing, packaging, storage, and distribution technologies and processes for food products. Includes instruction in food engineering, food preservation and handling, food preparation, food packaging and display, food storage and shipment, and related equipment and facilities design, operation, and maintenance.

01.1099 Food Science and Technology, Other. (No substantive changes)

Any instructional program in food sciences and technology not listed above.

01.11 Plant Sciences. (No substantive changes)

Instructional content for this group of programs is defined in codes 01.1101 - 01.1199.

01.1101 Plant Sciences, General. (No substantive changes)

A general program that focuses on the scientific principles that underlie the breeding, cultivation, and production of agricultural plants, and the production, processing, and distribution of agricultural plant products. Includes instruction in the plant sciences, crop cultivation and production, and agricultural and food products processing.

See also: 26.0301 - Botany/Plant Biology., 26.0305 - Plant Pathology/Phytopathology., 26.0307 - Plant Physiology., 26.0308 - Plant Molecular Biology.

01.1102 Agronomy and Crop Science. (No substantive changes)

A program that focuses on the chemical, physical, and biological relationships of crops and the soils nurturing them. Includes instruction in the growth and behavior of agricultural crops, the development of new plant varieties, and the scientific management of soils and nutrients for maximum plant nutrition, health, and productivity.

01.1103 Horticultural Science. (No substantive changes)

A program that focuses on the scientific principles related to the cultivation of garden and ornamental plants, including fruits, vegetables, flowers, and landscape and nursery crops. Includes instruction in specific types of plants, such as citrus; breeding horticultural varieties; physiology of horticultural species; and the scientific management of horticultural plant development and production through the

life cycle.

01.1104 Agricultural and Horticultural Plant Breeding. (No substantive changes)

A program that focuses on the application of genetics and genetic engineering to the improvement of agricultural plant health, the development of new plant varieties, and the selective improvement of agricultural plant populations. Includes instruction in genetics, genetic engineering, population genetics, agronomy, plant protection, and biotechnology.

See also: 26.0805 - Plant Genetics.

01.1105 Plant Protection and Integrated Pest Management. (No substantive changes)*CIP Title or Definition Changed*

A program that focuses on the application of scientific principles to the control of animal, insect and weed infestation of domesticated plant populations and other settings, including agricultural crops; the prevention/reduction of attendant economic loss; and the control of environmental pollution and degradation related to pest infestation and pest control measures. Includes instruction in entomology, applicable animal sciences, plant pathology and physiology, weed science, crop science, and environmental toxicology.

Examples:

- Pest Management
- Extermination

See also: 26.0702 - Entomology.

01.1106 Range Science and Management. (No substantive changes)

A program that focuses on the scientific study of rangelands, arid regions, grasslands, and other areas of low productivity, as well as the principles of managing such resources for maximum benefit and environmental balance. Includes instruction in livestock management, wildlife biology, plant sciences, ecology, soil science, and hydrology.

01.1199 Plant Sciences, Other. (No substantive changes)

Any instructional program in plant sciences not listed above.

01.12 Soil Sciences. (No substantive changes)

Instructional content for this group of programs is defined in codes 01.1201 - 01.1299.

01.1201 Soil Science and Agronomy, General. (No substantive changes)

A program that generally focuses on the scientific classification of soils, soil properties, and their relationship to agricultural crops. Includes instruction in soil chemistry, soil physics, soil biology, soil fertility, morphogenesis, mineralogy, hydrology, agronomy, and soil conservation and management.

01.1202 Soil Chemistry and Physics. (No substantive changes)

A program that focuses on the application of chemical and physical principles to research and analysis

concerning the nature and properties of soils and the conservation and management of soils. Includes instruction in soil and fluid mechanics, mineralogy, sedimentology, thermodynamics, geomorphology, environmental systems, analytical methods, and organic and inorganic chemistry.

01.1203 Soil Microbiology. (No substantive changes)

A program that focuses on application of microbiological theory and methods to the study of the organismic properties of soils, soil-plant and soil-animal interactions, and the biological components and effects of soil management strategies. Includes instruction in microbiology and related biological sciences, applicable animal and plant sciences, soil chemistry and physics as related to biological characteristics, and environmental science.

01.1299 Soil Sciences, Other. (No substantive changes)

Any instructional program in the soil sciences not listed above.

Examples:

- Environmental Soil Science

01.99 Agriculture, Agriculture Operations, and Related Sciences, Other. (No substantive changes)

Instructional content is defined in code 01.9999.

01.9999 Agriculture, Agriculture Operations, and Related Sciences, Other. (No substantive changes)

Any instructional program in agriculture, agricultural operations, and related sciences not listed above.

04.0601 Landscape Architecture. (No substantive changes)

A program that prepares individuals for the independent professional practice of landscape architecture and research in various aspects of the field. Includes instruction in geology and hydrology; soils, groundcovers, and horticultural elements; project and site planning; landscape design, history, and theory; environmental design; applicable law and regulations; and professional responsibilities and standards.

Examples:

- Landscape Architecture (BS, BSLA, BLA)
- Landscape Architecture (MSLA, MLA)
- Landscape Architecture (PhD)

See also: 01.0605 - Landscaping and Groundskeeping., 03.0206 - Land Use Planning and Management/Development.

13.1301 Agricultural Teacher Education. (No substantive changes)

A program that prepares individuals to teach vocational agricultural programs at various educational levels.

See also: 01.0801 - Agricultural and Extension Education Services.

14.0301 Agricultural Engineering. (No substantive changes)*CIP Title or Definition Changed*

A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of systems, equipment and facilities for production, processing, storage, handling, distribution and use of food, feed, and fiber. Includes applications to aquaculture, forestry, human and natural resources.

Examples:

- Bioprocessing Engineering
- Food Engineering
- Soil Engineering

26.0301 Botany/Plant Biology. (No substantive changes)

A program that focuses on the scientific study of plants, related microbial organisms, and plant habitats and ecosystem relations. Includes instruction in plant anatomy and structure, phytochemistry, cytology, plant genetics, plant morphology and physiology, plant ecology, plant taxonomy and systematics, paleobotany, and applications of biophysics and molecular biology.

See also: 01.1101 - Plant Sciences, General.

26.0305 Plant Pathology/Phytopathology. (No substantive changes)

A program that focuses on the scientific study of plant diseases and plant health, and the development of disease control mechanisms. Includes instruction in plant anatomy and physiology, pathogenesis, molecular plant virology, molecular genetics, bacterial epidemiology, causal agent identification, host/agent interactions, disease resistance and response mechanisms, developing plant disease treatments, disease prevention, and disease physiology and control.

See also: 01.1101 - Plant Sciences, General.

26.0307 Plant Physiology. (No substantive changes)

A program that focuses on the scientific study of plant internal dynamics and systems, plant-environment interaction, and plant life cycles and processes. Includes instruction in cell and molecular biology; plant nutrition; plant respiration; plant growth, behavior, and reproduction; photosynthesis; plant systemics; and ecology.

See also: 01.1101 - Plant Sciences, General.

26.0308 Plant Molecular Biology. (No substantive changes)

A program that focuses on the application of molecular biology, biochemistry, and biophysics to the study of biomolecular structures, functions, and processes specific to plants and plant substances. Includes instruction in the biochemistry of plant cells, nuclear-cytoplasmic interactions, molecular cytostructures, photosynthesis, plant molecular genetics, and the molecular biology of plant diseases.

See also: 01.1101 - Plant Sciences, General.

26.0502 Microbiology, General. (No substantive changes)

A program that focuses on the scientific study of unicellular organisms and colonies, and subcellular genetic matter and their ecological interactions with human beings and other life. Includes instruction in microbial genetics, cell biology, cell physiology, virology, pathogenic microbiology, environmental microbiology, immunology, biostatistics, bioinformatics, and laboratory methods including microscopy.

26.0505 Parasitology. (No substantive changes)

A program that focuses on the scientific study of biological organisms living in ecologically exploitative and competitive relationships with host organisms, and the role of parasites in causing injury, disease, and environmental damage. Includes instruction in vector biology, immunoparasitology, medical parasitology, molecular biology of parasitological associations, veterinary and comparative parasitology, chemotherapeutics, and ecological and systematic parasitology.

26.0506 Mycology. (No substantive changes)

A program that focuses on the scientific study of fungi, lichenous plants, eukaryotic microorganisms, myxomycetes, and plasmodiophorales and their relationship to diseases in higher plants, animals, and human beings as well as to pharmacologically useful products. Includes instruction in cell and molecular biology; histopathology; fungal growth and behavior; environmental mycology; antifungal sensitivity; mycoses; pathogens and pathogenesis; pharmacological properties; and computer and laboratory research methods.

26.0701 Zoology/Animal Biology. (No substantive changes)

A general program that focuses on the scientific study of the biology of animal species and phyla, with reference to their molecular and cellular systems, anatomy, physiology, and behavior. Includes instruction in molecular and cell biology, microbiology, anatomy and physiology, ecology and behavior, evolutionary biology, and applications to specific species and phyla.

See also: 01.0901 - Animal Sciences, General.

26.0702 Entomology. (No substantive changes)

A program that focuses on the scientific study of insect species and populations in respect of their life cycles, morphology, genetics, physiology, ecology, taxonomy, population dynamics, and environmental and economic impacts. Includes instruction in applicable biological and physical sciences as well as insect toxicology and the biochemical control of insect populations.

See also: 01.1105 - Plant Protection and Integrated Pest Management.

26.0707 Animal Physiology. (No substantive changes)

A program that focuses on the scientific study of function, morphology, regulation, and intercellular communications and dynamics within vertebrate and invertebrate in animal species, with comparative applications to homo sapiens and its relatives and antecedents. Includes instruction in reproduction, growth, lactation, digestion, performance, behavioral adaptation, sensory perception, motor action,

phylogenetics, biotic and abiotic function, membrane biology, and related aspects of biochemistry and biophysics.

26.0803 Microbial and Eukaryotic Genetics. (No substantive changes)

A program that focuses on the scientific study of the genetics of viruses, infectious agents, organelles, nuclear genomes, eubacteria, archaeobacteria, and eukaryotic organisms. Includes instruction in molecular genetics and evolution, parasitic and symbiotic interaction at the genetic level, epigenetic phenomena, microbial interactions, and genomics.

26.0804 Animal Genetics. (No substantive changes)

A program that focuses on the scientific study of the genetics of multicellular animal life forms from the experimental, comparative, and clinical (veterinary and medical) viewpoints. Includes instruction in molecular genetics, gene expression, gene regulation, genomics, epigenetic phenomena, DNA recombination and repair, genetic interactions at the microbial and higher levels, and molecular evolution.

See also: 01.0902 - Agricultural Animal Breeding.

26.0805 Plant Genetics. (No substantive changes)

A program that focuses on the scientific study of the genetics of multicellular plants and fungi as related to botanical research as well as to applications in comparative genetics, ecology and evolutionary studies, clinical studies, and industrial research. Includes instruction in molecular genetics, gene expression, gene regulation, genomics, epigenetic phenomena, DNA recombination and repair, genetic interactions at the microbial and higher levels, and molecular evolution.

See also: 01.1104 - Agricultural and Horticultural Plant Breeding.

26.0910 Pathology/Experimental Pathology. (No substantive changes)

A program that focuses on the scientific study of the expression, initiation, maintenance and progression of tissue injury and disease, including death, and the relationship of pathogenesis to fundamental molecular and cellular mechanisms. Includes instruction in immunology, microbiology, gene expression, inflammation, cell injury, apoptosis, immunopathology, molecular markers of disease and toxins, neoplasia, growth regulation, and organ- and system-specific investigations.

26.1001 Pharmacology. (No substantive changes)

A program that focuses on the scientific study of drug interactions on biological systems and organisms and the sources, chemical properties, biological effects, and therapeutic uses of drugs. Includes instruction in pharmacodynamics, pharmacokinetics, toxicology, drug therapeutics, drug action, bodily responses to drug events, biochemical proliferation and differentiation, apoptosis, cell biology, medicinal chemistry, and studies of specific drugs and drug interactions.

See also: 51.2003 - Pharmaceutics and Drug Design., 51.2010 - Pharmaceutical Sciences.

26.1004 Toxicology. (No substantive changes)

A program that focuses on the scientific study of poisons and other biohazards; their interactions with

organisms and their food and respiratory systems; and their prevention, management, and counteraction. Includes instruction in toxicological biochemistry, toxic agents and transporters, toxin fate, toxicokinetics and metabolism, toxin classification, molecular toxic mechanisms, extracellular matrices and cell function, bacterial pathogenesis and mutagenesis, pathophysiology and apoptosis, cell stress and injury, studies of specific toxins, and studies of specific organ systems and physiological functions in relation to toxicological problems.

45.1101 Sociology. (No substantive changes)

A program that focuses on the systematic study of human social institutions and social relationships. Includes instruction in social theory, sociological research methods, social organization and structure, social stratification and hierarchies, dynamics of social change, family structures, social deviance and control, and applications to the study of specific social groups, social institutions, and social problems.

51.2005 Natural Products Chemistry and Pharmacognosy. (No substantive changes)

A program that focuses on the scientific study of biologically active compounds found in naturally occurring sources such as plants, animals, and microbes and their use and/or modification as medicinal substances. Includes instruction in medicinal chemistry, organic medicinals, pharmacological therapeutics, pharmacokinetics, molecular biology, structural chemistry, enzymes, nucleic acids, economic botany, ethnobotany, bioprospecting, bioassay, compound identification and isolation, mass spectrometry, and analytical instrumentation and techniques.

Examples:

- Natural Products Chemistry and Pharmacognosy (MS)
- Natural Products Chemistry and Pharmacognosy (PhD)