# Agricultural Production Operations, General CIP 01.0301

# Competency Task List

## 100 Supervised Agricultural Experience

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| Item | Task  | (X) Indicates Proficiency 1 | Secondary Course Cross-Walk |
| 101 | Develop short-, mid- and long-term project plans. |   |   |
| 102 | Develop a Supervised Agricultural Experience (SAE) based upon individual interests/career goals. |  |  |
| 103 | Maintain records to build financial literacy. |  |  |
| 104 | Analyze records to determine strengths and areas for improvement. |  |  |

## 200 Agribusiness Systems

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| Item | Task  | (X) Indicates Proficiency 1 | Secondary Course Cross-Walk |
| 201 | Differentiate between types of agricultural business~~es~~. |   |   |
| 202 | Describe the meaning, importance and economic impact of entrepreneurship. |   |   |
| 203 | Compare supply and demand principles in agricultural business. |   |   |
| 204 | Identify the components of a business plan: mission, vision, SMART goals, SWOT analysis, risk assessment. |   |   |
| 205 | Differentiate between assets and liabilities. |   |   |
| 206 | Assess financial records associated with production and profit (cash flow, budget, net worth). |   |   |
| 207 | Identify the purpose, components and developmental processes of marketing plans. |  |  |
| 208 | Evaluate potential sources for credit. |  |  |
| 209 | Identify the economic impact of Pennsylvania agricultural commodities, products and services, both domestic and international. |  |  |

## 300 Animal Systems

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| Item | Task  | (X) Indicates Proficiency 1 | Secondary Course Cross-Walk |
| 301 | Implement disease prevention methods (biosecurity). |  |   |
| 302 | Identify the societal uses of animals, e.g., food, work, companionship, pleasure. |  |   |
| 303 | Select animals for specific purposes and maximum performance based on anatomy and physiology. |  |  |
| 304 | Utilize a Punnett square to determine the potential phenotypes and genotypes of animals. |  |  |
| 305 | Classify animals according to taxonomy and agricultural use. |  |  |
| 306 | Compare ruminant and monogastric digestive systems. |  |  |
| 307 | Identify the common parts of the reproductive systems of small and large animals. |  |  |
| 308 | Select appropriate feedstuffs for animals based on factors such as economics, digestive system, and nutritional needs. |  |  |
| 309 | Analyze feed tags and feed labels. |  |  |
| 310 | Identify feedstuffs as roughages, concentrates, and supplements. |  |  |
| 311 | RESERVED |  |  |
| 312 | Administer a treatment based on information found on a drug label. |  |  |

## 400 Biotechnology Systems

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| Item | Task  | (X) Indicates Proficiency 1 | Secondary Course Cross-Walk |
| 401 | Demonstrate laboratory skills as applied to biotechnology. |  |   |
| 402 | Apply the steps of the scientific method. |  |   |
| 403 | Identify plant and animal cell structures and functions. |  |  |
| 404 | Explain the structure of DNA and RNA and how genotype influences phenotype. |  |  |
| 405 | Interpret the processes utilized in converting plant material into alternative energy (biofuels and biomass). |  |  |
| 406 | Identify the purposes of biotechnology in animal and plant production. |  |  |
| 407 | Differentiate between applications of biotechnology in agriculture, e.g., GMOs, artificial insemination, embryo transfer, genetic engineering. |  |  |
| 408 | Analyze the benefits and risks associated with biotechnology. |  |  |

## 500 Food Products and Processing Systems

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| Item | Task  | (X) Indicates Proficiency 1 | Secondary Course Cross-Walk |
| 501 | Analyze and demonstrate food handling safety. |   |   |
| 502 | Identify the seven principles of Hazard Analysis and Critical Control Points (HACCP). |   |   |
| 503 | Describe the process that an agricultural product takes from the producer to the consumer. |  |  |
| 504 | Explain the importance of microbiological tests in food product processing, listing common spoilage and pathogenic microorganisms. |  |  |
| 505 | Compare and contrast common food constituents, e.g., proteins, carbohydrates, fats, vitamins, minerals. |  |  |

## 600 Environmental and Natural Resource Systems

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| Item | Task  | (X) Indicates Proficiency 1 | Secondary Course Cross-Walk |
| 601 | Identify hazards associated with the outdoor environment. |   |   |
| 602 | Select the proper response to environmental accidents. |   |   |
| 603 | Identify on-farm conservation and preservation practices for environmental sustainability. |   |   |
| 604 | Differentiate between renewable and nonrenewable natural resources. |   |   |
| 605 | Differentiate between point source and nonpoint source pollution. |  |  |
| 606 | Describe the interdependence on organisms within an ecosystem. |  |  |
| 607 | Describe characteristics used to identify trees and shrubs. |  |  |
| 608 | Relate production practices to the prevention of soil, water, and air pollution. |  |  |
| 609 | Identify the stages of forest succession. |  |  |
| 610 | Describe land use planning and growth management methods for sustainable agriculture. |  |  |

## 700 Plant and Soil Systems

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| Item | Task  | (X) Indicates Proficiency 1 | Secondary Course Cross-Walk |
| 701 | Select proper personal protective equipment (PPE) based on a product label. |   |   |
| 702 | Distinguish between the components of an iIntegrated pest management (IPM) program, including the effects of chemicals and pesticides on the environment. |  |  |
| 703 | Identify plant structures and functions. |  |  |
| 704 | Describe the processes of photosynthesis, respiration, translocation, and transpiration. |  |  |
| 705 | Identify plant nutrient requirements. |  |  |
| 706 | Explain the environmental factors that affect the growth and development of a plant. |  |  |
| 707 | Distinguish between sexual and asexual plant reproduction. |  |  |
| 708 | Identify and describe physical characteristics of soil (sand, silt and clay). |  |  |
| 709 | Test soil for pH, texture, and macronutrients. |  |  |
| 710 | Interpret soil test reports. |  |  |
| 711 | Describe criteria for selecting fertilizers (N, P, K). |  |  |
| 712 | Calculate area (square feet, square yards and acreage). |  |  |
| 713 | Analyze and interpret soil surveys. |  |  |
| 714 | Identify the top five Pennsylvania field crops and vegetable crops by acreage. |  |  |
| 715 | RESERVED |  |  |

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## 800 Power, Structural and Technical Systems

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| Item | Task  | (X) Indicates Proficiency 1 | Secondary Course Cross-Walk |
| 801 | Identify the dangers in an agricultural mechanic shop and workplace. |   |   |
| 802 | Identify and demonstrate wearing of personal protective equipment (PPE).  |   |   |
| 803 | Identify and locate firefighting equipment, e.g., fire extinguisher, fire blankets. |   |   |
| 804 | Identify, select, adjust, maintain, and use common hand tools and power tools. |  |  |
| 805 | Use measurement devices and techniques for calculating measurement. |  |  |
| 806 | Identify electric arc/stick welding equipment. |  |  |
| 807 | List and identify the components and functions of major engine parts. |  |  |
| 808 | Review operating and service manuals and schedules and conduct procedures as needed. |  |  |
| 809 | Identify agriculture equipment and their operations, e.g., tractor, combine, baler, plow, no-till drill. |  |  |
| 810 | Use a multimeter in electrical theory. |  |  |
| 811 | Read and interpret local structural code information. |  |  |

## 900 Leadership

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| Item | Task  | (X) Indicates Proficiency 1 | Secondary Course Cross-Walk |
| 901 | Create short- and long-term SMART (Specific, Measurable, Attainable, Realistic, Timely) goals. |   |   |
| 902 | Participate in an intra-curricular agricultural student organization, such as FFA. |   |   |
| 903 | RESERVED |   |   |
| 904 | Demonstrate oral, written, and verbal skills necessary for employment. |  |  |
| 905 | Research and participate in career opportunities in agriculture. |  |  |
| 906 | Create a career objective and develop a plan of experiences and academics to meet the objective. |  |  |
| 907 | RESERVED |  |  |
| 908 | Apply concepts of conducting a meeting. |  |  |

1 Student Demonstrated Entry-Level Industry Proficiency as Indicated by (X)