

2. Agriculture, Food and Natural Resources – 0129-0199

This subject area encompasses courses that prepare learners for careers in the planning, implementation, production, management, processing, and/or marketing of agricultural commodities and services, including food, fiber, wood products, natural resources, horticulture, and other plant and animal products. All courses should adhere to the complete program model, incorporating 1) classroom and laboratory instruction, 2) supervised agricultural (occupational) experience, and 3) participation in leadership, knowledge and skill development activities provided through FFA.

0131 Agricultural Explorations - Recommended for Students Grades 7-8 - Surveys a wide array of topics within the agricultural industry, exposing students to the many and varied types of agricultural career opportunities and to those in related fields. As the name implies, these courses serve simply to introduce the agricultural field, providing students the opportunity to identify and focus for continued study. Primarily designed for seventh and/or eighth grade.

0132 Agri Science - Recommended for Students Grades 7-8 - Introduction of the scientific principles upon which the agricultural industry is based. Subject matter includes the physiological processes of agriculturally important plants and animals, taxonomy and classification systems, soil and water chemistry, ecology and entomology.

0133 Introduction to the Science of Agriculture - Recommended for Students Grades 9-12 - The local, national, and global definitions, history, and scope of agriculture in society is covered in this course. It also covers plant and animal sciences, production and processing; agricultural mechanics, including tool and machine operation; business and natural resource management; management of food and fiber systems; soil characteristics, formation and properties; and development of leadership and communication skills.

0134 Intro to the Physical Science of Agriculture - Recommended for Students Grades 10 - 12 - The course covers the global market place, development of a Program of Activities, and leadership development. Animal science emphasis is on the selection, reproduction and genetics of breeds of beef, sheep, and swine, dairy cattle, horses, poultry, and specialty animals. Plant science emphasis is on the structure and function of plant parts; identification of common pasture and range plants; plant growth and development; sexual and asexual reproduction of plants. Soil science topics include nutrients, fertilizers, and organic matter; conservation practices and sampling techniques.

0135 Science–Environmental, Animal, Plant in Ag - Recommended for Students Grades 10 - 12 - Topics covered in this course include animal science with emphasis on the feeding and management of breeds of livestock, digestive systems, and classes of feed and feed additives. Entomology topics are characteristics, development and physiology of insects, and integrated pest management. Introduction to forestry, range, and wildlife management are also included in this course.

0136 Applied Science in Agriculture - Recommended for Students Grades 10 - 12

- Specific subject matter covered in this course includes current issues relevant to the agricultural industry, marketing and sales techniques. Disease and parasites effecting the various breeds of livestock; Animal welfare and relationship to the human environment; May include the horticultural practices of greenhouse management; fruit, nut and vegetable production; and landscaping principles; Forest fire prevention and techniques, public and private land forests; Wildlife mammals, waterfowl, freshwater fish, and game management.

0137 Agricultural Leadership/Communication - Recommended for Students

Grades 10 - 12 - Course is designed to strengthen students' personal and group leadership skills. Topics such as public speaking, effective communication, human relations, parliamentary law, and group dynamics are covered. Also covered is the development of Programs of Activity, and Service Learning projects, including student development, chapter development, and community development.

0141 Science-Horticulture/Botany - Recommended for Students Grades 9 - 12 -

The focus of this course is on the science of plants (botany). Specific topics include photosynthesis and respiration, analysis of the difference of plant and animal cell structure, genetics, taxonomy and classification. Also included are topics covering entomology, soil chemistry, and plant diseases; virus and bacteria life cycles and effects on plant growth. Focus is on horticultural crops including greenhouse, landscape and floral plants.

0142 Science- Agriculture animals/Agronomy - Recommended for Students

Grades 10 - 12 - The focus of this course is on the science of plants (botany). Specific topics include photosynthesis and respiration, analysis of the difference of plant and animal cell structure, genetics, taxonomy and classification. Also included are topics covering entomology, soil chemistry, and plant diseases; virus and bacteria life cycles and effects on plant growth. Focus is on food/ fiber crops and pasture/range plants.

0143 Greenhouse/Nursery Operations - Recommended for Students Grades 10 -

12 - This course covers greenhouse/nursery operation and management. Plant propagation including grafting, budding, and layering. Students are often involved in the planning, management, and marketing associated with the school greenhouse/nursery.

0144 Landscape - Recommended for Students Grades 10 - 12 - Introduction to

landscape design, construction, and maintenance. Irrigation systems for the landscape, including water conservation and use, and xeriscape for plants. Drawing instruments and symbols used in designing the landscape plan, identification and selection of landscape ground covers, shrubs, trees, and other construction materials. Cost estimates and landscaped proposals are also covered in this course.

0145 Floriculture - Recommended for Students Grades 10 - 12 - Focus is on the

floriculture industry including plant production, processing, marketing, and principles of floral design. Students are often involved in a simulated floral shop on the school

grounds. Interior landscaping may also be included in this course.

0151 Introduction to Agricultural Mechanics - Recommended for Students

Grades 9 - 12 - Course provides for the skill and knowledge development applicable to the tools and equipment used in the agricultural industry. In learning to apply basic industrial knowledge and skills (engines, power, welding, and carpentry), a broad range of topics may be explored, including the operation, mechanics, and care of tools and machines; the construction and repair of structures; introduction to electricity and power. Procedures for safe operations in the agricultural mechanics laboratory are included in this course.

0152 Agricultural Structures and Construction - Recommended for Students

Grades 10 - 12 - Topics include surveying, concrete and masonry, plumbing, drafting, carpentry and electrical wiring; use of bids and billing information to develop a complete materials list and project cost estimate; use of measurement and layout tools. Procedures for safe operations in the agricultural mechanics laboratory are included in this course.

0153 Metal Fabrication for the Agricultural Industry - Recommended for Students

Grades 10 - 12 - Topics include oxyacetylene and mig welding techniques including cutting, brazing, and welding; Fabrication techniques and project design including estimating and developing materials list. Tool room management and safety procedures are essential to the course.

0154 Agricultural Power and Machinery - Recommended for Students Grades 10 -

12 - The course includes maintenance and troubleshooting, and repair of small gas engines, auto and farm equipment maintenance; Identification and comparison of energy sources. Troubleshoot problems and evaluate performance to service and repair components of internal combustion engines. Follow manufacturers' guidelines to service and repair power transmission systems. Utilize maintenance manuals to service and repair hydraulic systems. Utilize schematics to service vehicle electrical systems.

0161 Science of Large Agriculture Animals - Recommended for Students Grades

10 - 11 - Course imparts information about the care and management of domesticated animals. Animal nutrition, health, reproduction, genetics, facilities, and marketing are all possible topics; Study of anatomy and physiology of livestock and other domesticated animals. Examination of developmental stages and analysis of feed ration for different parts of an animal's life cycle. Identification of environmental factors that affect an animal's performance, and recognition of animal behaviors to facilitate working with animals safely.

0162 Science of Small Animals - Recommended for Students Grades 11 - 12 -

Course imparts information about the care and management of domesticated animals. Animal nutrition, health, reproduction, genetics, facilities, and marketing are all possible topics; Study of anatomy and physiology of livestock and other domesticated animals. Examination of developmental stages and analysis of feed ration for different parts of an

animal's life cycle; Identification of environmental factors that affect an animal's performance; Recognition of animal behaviors to facilitate working with animal safely. Specific focus of this course is on small animals including rabbits, fowl, dogs, and cats.

0163 Science of Large Animals - Recommended for Students Grades 11 - 12 - Course imparts information about the care and management of domesticated animals. Animal nutrition, health, reproduction, genetics, facilities, and marketing are all possible topics; Study of anatomy and physiology of livestock and other domesticated animals. Examination of developmental stages and analysis of feed ration for different parts of an animal's life cycle. Identification of environmental factors that affect an animal's performance and recognition of animal behaviors to facilitate working with animal safely. Specific focus of this course is on dairy cattle and equine.

0164 Veterinary Science – Grades 10-12 – This course will promote Career and Post-Secondary readiness by providing opportunities to develop knowledge and demonstrate skills in the area of Veterinary Science. Subject matter areas include, animal behavior, medical terminology, health records, anatomy and physiology as well as patient and facility care.

0171 Agricultural Economics and Business Management - Recommended for Students Grades 10 - 12 - Course provides students with the information and skills necessary for career success in agribusiness and in the operation of entrepreneurial ventures. Topics include economic principles, budgeting, risk management, finance, business law, insurance and resource management. Other possible topics are development of a business plan, employee/employer relations, problem solving and decision making, using computers. A survey of the careers within the agricultural industry is also incorporated.

0172 Agricultural Marketing/Sales - Recommended for Students Grades 10 - 12 - Course focuses specifically on the marketing and promotional strategies for agricultural products. Students will develop a marketing plan for a specific product including target audience research and presentation skills. Agricultural sales techniques for products will also be covered.

0173 Science of Food Products and Food Processing - Recommended for Students Grades 10 - 12 - Course imparts the knowledge and skill needed to bring animal and plant products to market. Processing topics will include quality selection and preservation, equipment care and sanitation, government regulations, and consumer trends.

0174 Science of Animal Production and Processing - Recommended for Students Grades 10 - 12 - Course imparts the knowledge and skill needed to bring animal products to market. Processing topics will include quality selection and preservation, equipment care and sanitation, government regulations, and consumer trends. Animal processing courses may impart an overview of several types of animal products, or may

specialize in particular products, such as meat, leather, wool, and dairy products.

0181 Environmental Science/Natural Resources - Recommended for Students Grades 10 - 12 - Course combines the fields of ecology and conservation with planning for the efficient use and preservation of land, water, wildlife, and forests. Within this course may be topics covering environmental factors affecting water, water pollution, water and land use management, alternative energy resources, metals and minerals.

0182 Science of Wildlife and Forestry Management - Recommended for Students Grades 10 - 12 - Course provide the information necessary for the cultivation and care of forests or timberlands. Forestry topics covered are the processes of regeneration and reforestation, conservation of natural resources, erosion control, trail development and maintenance, mapping and surveying, operation of forestry tools, government regulations, and recreational uses. Wildlife topics include land and ecological systems that enable non-domesticated animal to thrive. Emphasize on how humans and animals may both take advantage of the same land, how to gain economic benefits from the land while not degrading its natural resources or depleting the plant and animal populations.

0191 Agricultural Internship/OJT/Coop - Recommended for Students Grades 11 - 12 - Through these courses, work experience is gained within the agricultural industry. Goals are set for the employment period. Classroom experience may involve further study in the field, improvement of employability and career readiness skills.

0192 Agricultural Entrepreneurship - Recommended for Students Grades 11 - 12 - Through this course the student will gain knowledge in the development of a business enterprise. Financial and resource management is an important aspect of this course. Classroom experience may involve further study in the field, improvement of responsibility and career readiness skills.

0199 Agriculture Other - Recommended for Students Grades 11 - 12 - Course provides knowledge and skills in specific areas of the agricultural industry and is designed to adapt to the needs of the local community.