

Agriculture, Food and Natural Resources Cluster

Concentration and Course Descriptions

2012-2013

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Agriculture, Food, and Natural Resources Cluster

Cluster Description:

The agricultural education program is built on the three core areas of classroom/laboratory instruction, supervised agricultural experience programs and FFA student organization activities/opportunities. The program is designed for delivery through these three components as follows:

- Classroom/Laboratory Instruction – quality instruction in and about agriculture that utilizes a "learning by doing" philosophy.
- Supervised Agricultural Experience Programs – all students are expected to have an agriculturally related work-based learning experience while enrolled in agricultural education courses.
- FFA Student Organization activities/opportunities – FFA activities are an integral part of the agricultural education program that all agricultural education students should participate in if they are to fully benefit from their enrollment in the program.

A quality agricultural education program has a balanced utilization of these three core components. These components are best carried out when the following strategies are employed:

- Community-Based Planning – involvement of the school administration and community in the planning and coordination of the program is essential to success.
- Professional Development – agriculture teachers take advantage of opportunities for professional development and growth.
- Partnerships – the development of alliances with community and business leaders is essential for program success.
- Marketing – every agricultural education program needs a successful marketing strategy in place to attract and retain students and the support of the community that is being served.

When these components and strategies are in place, program success will occur.

Concentration: SN0110 Power, Structural and Technical Systems

Courses: 0101 Introduction to Agriculture, Food, and Natural Resources
0112 Fundamentals of Agriculture Mechanics
Power, Structural & Technical Specialization
0134 Agricultural Experience Program

Concentration Description:

The Power, Structural and Technical Systems concentration focuses on entrepreneurial skills and careers in the agricultural mechanics industry. Specializations for this concentration allow students to pursue their interests in either agricultural structures or agriculture repair and maintenance.

Course Descriptions:

0101 Introduction to Agriculture, Food, and Natural Resources

This is a core course for the Agriculture, Food and Natural Resources Career Cluster that builds a knowledge base and technical skills in all aspects of the industry. Learners will be exposed to a broad range of agriculture, food and natural resources careers. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0112 Fundamentals of Agriculture Mechanics

This course introduces the knowledge and skills for applying the physical science principles and principles of operation and maintenance to mechanical equipment, welding and fabrication, structures, plumbing, electrical wiring, power utilization, and entrepreneurship. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0134 Agricultural Experience Program

The Supervised Agricultural Experience program is a hands on, student planned way for them to apply skills learned in the classroom to real world agricultural experiences. With help from their agricultural teachers, students develop an SAE project based on one or more SAE categories:

Entrepreneurship

Own and operate an agricultural business (e.g. a lawn care service, a pay-to-fish operation, holiday poinsettia production and sales.)

Placement Get a job or internship on a farm or ranch, at an agriculture-based business, or in a school or factory laboratory.)

Research and Experimentation Plan and conduct a scientific experiment. (e.g. Determine whether the phases of the moon affect plant growth, or test and determine the efficacy of different welding methods.)

Exploratory Explore careers in agriculture by attending an agriculture career fair, or creating a report or documentary on the work of a veterinarian.

Power, Structural & Technical Specialization: Choose One

0113 Agriculture Structures

Students will use computer skills to develop simple sketches and plans, read and relate structural plans to specifications and building codes, estimate project costs, use construction/fabrication equipment and tools, and plan and design machinery, equipment, buildings and facilities. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0114 Agriculture Equipment and Repair

This course builds on the principles of the previous course and provides more in-depth knowledge and skills as they relate to energy sources, lubricants, service and maintenance of machinery and equipment, and equipment operation. Students will apply principles of service and repair by troubleshooting problems and evaluating engine performance, follow guidelines to service and repair power transmission systems, hydraulic systems, and entrepreneurship. Tools used with these procedures will allow students to demonstrate proper skills and safety. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of

the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

Concentration: SN0120 Agribusiness Systems

Courses: 0101 Fundamentals of Agriculture
0102 The Science of Agriculture
Agribusiness Specialization
0134 Agricultural Experience Program

Concentration Description:

The Agribusiness Systems concentration focuses on entrepreneurial skills and careers in the broad spectrum of Agriculture, Food, and Natural Resources. This concentration offers the most flexibility of all agriculture concentrations for students to select a specialization from many areas: Forestry, Horticulture, Advanced Agriculture Principles, Animal Science, Agriculture Mechanics, and Animal Processing.

Course Descriptions:

0101 Introduction to Agriculture, Food, and Natural Resources

This is a core course for the Agriculture, Food and Natural Resources Career Cluster that builds a knowledge base and technical skills in all aspects of the industry. Learners will be exposed to a broad range of agriculture, food and natural resources careers. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0102 The Science of Agriculture

This course focuses on the basic scientific principles and processes related to the production of plants and animals for the food and fiber systems. Topics of instruction include basic understanding of the livestock/poultry industry and its various components, career opportunities, soil science, crop science/agronomy, weed science, basic agricultural mechanics and related industry careers, environmental stewardship, entrepreneurship, and leadership/personal development. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

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Entrepreneurship

Own and operate an agricultural business (e.g. a lawn care service, a pay-to-fish operation, holiday poinsettia production and sales.)

Placement Get a job or internship on a farm or ranch, at an agriculture-based business, or in a school or factory laboratory.)

Research and Experimentation Plan and conduct a scientific experiment. (e.g. Determine whether the phases of the moon affect plant growth, or test and determine the efficacy of different welding methods.)

Exploratory Explore careers in agriculture by attending an agriculture career fair, or creating a report or documentary on the work of a veterinarian.

Agribusiness Specialization: Choose One

0183 Forest Management

This course is designed to be a basic forestry course for students interested in forestry. The course will covers topics on best management practices, timber felling basics, dendrology, tree measurement basics, water quality, forest fire, read topography maps and basic log road layout, forest hazards ID, basic forestry concepts of edge, diversity, succession and structure, forest business and economics, forest insects, forest disease, and entrepreneurship. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0212 Horticulture

This course provides instruction on the broad field of horticulture with emphasis on the scientific and technical knowledge for a career in horticulture. Topics in this course include plant growth and development, plant nutrition, media selection, basic plant identification, pest management, chemical disposal, customer relations, career opportunities, leadership development and entrepreneurial skills. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia

Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0136 Advanced Principles of Agriculture

This course provides instruction that expands the scientific knowledge and technical skills gained in The Science of Agriculture. Topics of instruction include livestock/poultry industry and its various components, career opportunities, soil science, crop science/agronomy, weed science, agricultural machinery and related industry careers, environmental stewardship, entrepreneurship, and leadership/personal development. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0140 Animal Production and Management

This course is designed to be a core course in the Animal Systems concentration. The course will cover topics on animal restraint, animal management techniques, animal health and welfare, balancing rations, pedigree analysis, and entrepreneurship. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0112 Fundamentals of Agriculture Mechanics

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0139 Fundamentals of Animal Processing

This course introduces students to the principles and applications of animal processing. Students will learn carcass grading, primal and retail cuts, workplace safety, how to process primal and retail cuts, and entrepreneurship. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

Concentration: SN0170 Biotechnology and Natural Resources

Courses: 0101 Introduction to Agriculture, Food and Natural Resources
0102 The Science of Agriculture
Biotechnology and Natural Resources Management Specialization
0134 Agricultural Experience Program

Concentration Description:

The Biotechnology and Natural Resources Management concentration focuses on entrepreneurial skills and careers in the areas agricultural biotechnology and natural resources management. Specializations are offered in Natural Resources Management for students interested in postsecondary education in the area of natural resources management and Agricultural Biotechnology for students interested in postsecondary education in the area of advanced applied sciences in agriculture.

Course Descriptions:

0101 Introduction to Agriculture, Food and Natural Resources

This is a core course for the Agriculture, Food and Natural Resources Career Cluster that builds a knowledge base and technical skills in all aspects of the industry. Learners will be exposed to a broad range of agriculture, food, and natural resources careers. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0102 The Science of Agriculture

This course focuses on the basic scientific principles and processes related to the production of plants and animals for the food and fiber systems. Topics of instruction include basic understanding of the livestock and poultry industry and its various components, career opportunities, soil science, crop science, agronomy, weed science, basic agricultural mechanics and related industry careers, environmental stewardship, entrepreneurship, and leadership/personal development. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are

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0134 Agricultural Experience Program

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Placement Get a job or internship on a farm or ranch, at an agriculture-based business, or in a school or factory laboratory.)

Research and Experimentation Plan and conduct a scientific experiment. (e.g. Determine whether the phases of the moon affect plant growth, or test and determine the efficacy of different welding methods.)

Exploratory Explore careers in agriculture by attending an agriculture career fair, or creating a report or documentary on the work of a veterinarian.

Biotechnology and Natural Resources Management Specialization: Choose One

0200 Natural Resources Management

This specialization course covers topics on soil and water conservation, basic wildlife management, environmental law and regulations, basic forestry, basic farm physics and engineering, oil and gas production, renewable energy, environmental systems, nutrient management planning and government agencies. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0190 Fish and Wildlife Management

This specialization course covers topics on advanced wildlife management principles, water quality, fish biology, history of fish and wildlife, habitat management, life history and wildlife values as a natural resources. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and

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0132 Agricultural Biotechnology

This course provides instruction in the technologically advanced world of agriculture and life sciences. Current applications of biotechnology in animal science, environmental science, food science, and plant science are emphasized. Basic concepts of genetics and microbiology are applied to the agriculture industry and its success in providing food and fiber for the world. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

Concentration: SN0181 Forestry

Courses: 0101 Introduction to Agriculture, Food and Natural Resources
0183 Forest Management
Forestry Specialization
0134 Agricultural Experience Program

Concentration Description:

The Forestry concentration focuses on entrepreneurial skills and careers in the areas of forest management, timber management, conservation and wildlife management. The concentration offers two unique specializations. Specializations are offered in Timber Management for students interested in timbering jobs and Forestry Science and Ecology for students interested in postsecondary education in the area of forestry, conservation and wildlife management.

Course Descriptions:

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0183 Forest Management

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Placement Get a job or internship on a farm or ranch, at an agriculture-based business, or in a school or factory laboratory.)

Research and Experimentation Plan and conduct a scientific experiment. (e.g. Determine whether the phases of the moon affect plant growth, or test and determine the efficacy of different welding methods.)

Exploratory Explore careers in agriculture by attending an agriculture career fair, or creating a report or documentary on the work of a veterinarian.

Forestry Specialization: Choose One

0184 Timber Management

This is a specialization course designed for students interested in entering the timber industry. The course will cover topics on basic silviculture, timber harvesting, surveying, topographic maps, logging roads, forest instruments, forest marketing, forest safety, PPE/MSDS, tree pruning techniques, chainsaw use and safety, perform preventative maintenance techniques on a chainsaw, construct logging roads, BMPs, advanced tree ID, tractor, skidder and dozer operation and maintenance. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organizations, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0187 Forestry Science and Ecology

This is a specialization course designed for students interested in pursuing a post-secondary degree in Forestry or Natural Resources. The course will cover topics on basic timber cruising, tree ID and marketing, forest and wildlife management techniques, firewood production, silvicultural practices, forest fire, soil surveys, GPS, tree growth, site and tolerance. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of

the student organizations, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

Concentration: SN0210 Plant Systems

Courses: 0101 Introduction to Agriculture, Food and Natural Resources
0212 Horticulture
Plant Systems Specialization
0134 Agricultural Experience Program

Concentration Description:

The Plant Systems concentration focuses on entrepreneurial skills and careers in the areas of plant science, greenhouse management and production, fruit and vegetable production, floriculture and turf and landscape systems. The concentration offers four unique specializations. Specializations are offered in Fruit and Vegetable Production, Greenhouse Production and Management, Floriculture and Turf and Landscape Systems.

Course Descriptions:

0101 Introduction to Agriculture, Food and Natural Resources

This is a core course for the Agriculture, Food and Natural Resources Career Cluster that builds a knowledge base and technical skills in all aspects of the industry. Learners will be exposed to a broad range of agriculture, food, and natural resources careers. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0212 Horticulture

This course provides instruction on the broad field of horticulture with emphasis on the scientific and technical knowledge for a career in horticulture. Topics in this course include plant growth and development, plant nutrition, media selection, basic plant identification, pest management, chemical disposal, customer relations, career opportunities, leadership development and entrepreneurial skills. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

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Entrepreneurship

Own and operate an agricultural business (e.g. a lawn care service, a pay-to-fish operation, holiday poinsettia production and sales.)

Placement Get a job or internship on a farm or ranch, at an agriculture-based business, or in a school or factory laboratory.)

Research and Experimentation Plan and conduct a scientific experiment. (e.g. Determine whether the phases of the moon affect plant growth, or test and determine the efficacy of different welding methods.)

Exploratory Explore careers in agriculture by attending an agriculture career fair, or creating a report or documentary on the work of a veterinarian.

Plant Systems Specialization: Choose One

0220 Fruit and Vegetable Production

This specialization course covers topics on plant nutrition, site preparation, plant selection, harvesting, equipment, value-added agriculture, insect and disease identification and control, food safety, soil management, entrepreneurship and animal control. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0214 Greenhouse Production and Management

This specialization course covers instruction that expands the scientific knowledge and skills to include more advanced scientific computations and communication skills needed in the horticulture industry. Topics include greenhouse plant production and management, bedding plant production, watering systems light effects, career planning, leadership development and entrepreneurial skills. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are

responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0213 Floriculture

This specialization course covers topics on floral design, business planning, market plan development, and entrepreneurship. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0240 Turf and Landscape Systems

This specialization course covers topics on lawn care and turf production, golf course management, irrigation systems, turf equipment and maintenance, landscape design, landscape plants, landscape maintenance, plant pruning, marketing, and entrepreneurship. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

Concentration: SN0220 Animal Systems

Courses: 0101 Introduction to Agriculture, Food and Natural Resources
0140 Animal Production and Management
Animal Systems Specialization
0134 Agricultural Experience Program

Concentration Description:

The Animal Systems concentration focuses on entrepreneurial skills and careers in the areas of animal production and management, animal science, livestock production, aquaculture, equine science and companion animal care. The concentration offers four unique specializations. Specializations are offered in Large Animal Science, Small Animal Science, Livestock Production , Companion Animal Care, Aquaculture and Equine Science.

Course Descriptions:

0101 Introduction to Agriculture, Food and Natural Resources

This is a core course for the Agriculture, Food and Natural Resources Career Cluster that builds a knowledge base and technical skills in all aspects of the industry. Learners will be exposed to a broad range of agriculture, food, and natural resources careers. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0140 Animal Production and Management

This course is designed to be a core course in the Animal Systems concentration. The course will cover topics on animal restraint, animal management techniques, animal health and welfare, balancing rations, pedigree analysis and entrepreneurship. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

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Entrepreneurship

Own and operate an agricultural business (e.g. a lawn care service, a pay-to-fish operation, holiday poinsettia production and sales.)

Placement Get a job or internship on a farm or ranch, at an agriculture-based business, or in a school or factory laboratory.)

Research and Experimentation Plan and conduct a scientific experiment. (e.g. Determine whether the phases of the moon affect plant growth, or test and determine the efficacy of different welding methods.)

Exploratory Explore careers in agriculture by attending an agriculture career fair, or creating a report or documentary on the work of a veterinarian.

Animal Systems Specialization: Choose One

0137 Large Animal Science

This is a specialization course designed for students interested in pursuing a post-secondary degree in animal science with a focus on livestock. The course will cover topics on animal management, genetics, physiology, animal health, applied microbiology, applied chemistry, applied biology, and biotechnology. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0138 Small Animal Science

This is a specialization course designed for students interested in pursuing a post-secondary degree in animal science with a focus on companion animals. The course will cover topics on animal management, genetics, physiology, animal health, applied microbiology, applied chemistry, applied biology, and biotechnology. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are

responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0230 Livestock Production

This is a specialization course designed for students interested in entering the livestock industry as a herd manager or livestock entrepreneur. The course will cover topics on nutrient management, farm planning, business planning, developing marketing plans, developing feed rations, forages, grassland management, embryo transfer and animal facilities as they apply to various livestock such as cattle, swine, sheep, goats, poultry and horses. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0149 Companion Animal Care

This is a specialization course designed for students interested in entering the companion animal industry as a pet groomer, animal care giver and/or companion animal entrepreneur. The course will cover topics on grooming, animal restraint, developing feed rations, business planning, developing marketing plans and animal facilities as they apply to various companion animals such as dogs, cats, rodents, birds, reptiles, amphibians and fish. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0141 Aquaculture

This specialization course focuses on the basic scientific principles and processes related to the aquaculture industry. Topics covered will be developing feed rations, business planning, developing marketing plans aquaculture facilities, water quality, breeding and management. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The

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2007 Equine Science

This specialization course focuses on the basic scientific principles and processes related equine physiology, breeding, nutrition, and management practices involved in the equine industry. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

Concentration: SN0230 Animal Processing

Courses: 0101 Introduction to Agriculture, Food, and Natural Resources
0139 Fundamentals of Animal Processing
Animal Processing Specialization
0134 Agricultural Experience Program

Concentration Description:

The Animal Processing concentration focuses on entrepreneurial skills and careers in the animal processing industry. Specializations for this concentration prepare students for the retail industry and the commercial plant industry.

Course Descriptions:

0101 Introduction to Agriculture, Food, and Natural Resources

This is a core course for the Agriculture, Food and Natural Resources Career Cluster that builds a knowledge base and technical skills in all aspects of the industry. Learners will be exposed to a broad range of agriculture, food and natural resources careers and Cluster Foundation Knowledge and Skills. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0139 Fundamentals of Animal Processing

This course introduces students to the principles and applications of animal processing. Students will learn carcass grading, primal and retail cuts, workplace safety, how to process primal and retail cuts, and entrepreneurship. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0134 Agricultural Experience Program

The Supervised Agricultural Experience program is a hands on, student planned way for them to apply skills learned in the classroom to real world agricultural experiences. With help from their agricultural teachers, students develop an SAE project based on one or more SAE categories:

Entrepreneurship

Own and operate an agricultural business (e.g. a lawn care service, a pay-to-fish operation, holiday poinsettia production and sales.)

Placement Get a job or internship on a farm or ranch, at an agriculture-based business, or in a school or factory laboratory.)

Research and Experimentation Plan and conduct a scientific experiment. (e.g. Determine whether the phases of the moon affect plant growth, or test and determine the efficacy of different welding methods.)

Exploratory Explore careers in agriculture by attending an agriculture career fair, or creating a report or documentary on the work of a veterinarian.

Animal Processing Specialization: Choose One

0151 Animal processing—Retail

This course is designed to give students the skills and knowledge needed to enter a career in the retail industry of animal processing. This course will build upon the concepts learned in Fundamentals of Animal Processing and emphasize retail cut processing, creating value added products, working with the public, and entrepreneurship. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

0160 Animal Processing--Plant

This course is designed to give students the skills and knowledge needed to enter a career in an animal processing plant. This course will build upon the concepts learned in Fundamentals of Animal Processing and emphasize primal cut processing, workplace safety, government regulations, and entrepreneurship. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, FFA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and

Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.