Agriculture, Food and Natural Resources: Animal Systems

Career Pathway Plan of Study for ▶ Learners ▶ Parents ▶ Counselors ▶ Teachers/Faculty

*This Career Pathway Plan of Study (based on the Animal Systems Pathway of the Agriculture, Food and Natural Resources Career Cluster) can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. *This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.*

EDUCATION LEVELS	GRADE	English/ Language Arts	Math	Science	Social Studies/ Sciences	Other Required Courses Other Electives Recommended Electives Learner Activities	*Career and Technical Courses and/or Degree Major Courses for Animal Systems Pathway	SAMPLE Occupations Relating to This Pathway
	Interest Inventory Administered and Plan of Study Initiated for all Learners							
SECONDARY	9	English/ Language Arts I	Algebra I	Earth or Environmental Science	State History Civics	All plans of study should meet local and state high school graduation requirements and college entrance requirements. Supervised Agricultural Experience (SAE) and participation in appropriate FFA activities support and reinforce classroom and laboratory learning and should be a requirement for all students.	• Introduction to Agriculture, Food and Natural Resources	**Occupations Requiring Postsecondary Education** ▶ Animal Caretaker-Poultry Manager ▶ Aquaculturalist ▶ Artificial Insemination Technician ▶ Dairy Producer ▶ Equine Manager ▶ Feed Sales Representative ▶ Livestock Buyer ▶ Livestock Inspector ▶ Livestock Producer ▶ Veterinary Assistant
SECONDARY	10	English/ Language Arts II	Geometry	Biology	U.S. History		• Introduction to Animal Science	
SECONDARY	11	English/ Language Arts III	Algebra II or other math course	Chemistry or other science course	World History		• Advanced Animal Science	
	College Placement Assessments-Academic/Career Advisement Provided							
SECONDARY	12	English/ Language Arts IV	Trigonometry or other math course	Physics or other science course			Select a specialized area from: • Small Animal Specialization • Equine Science • Biotechnology and Agricultural Science Research	
	Articulation/Dual Credit Transcripted-Postsecondary courses may be taken/moved to the secondary level for articulation/dual credit purposes.							**Occupations Requiring Baccalaureate Degree** ▶ Agricultural Educator ▶ Animal Nutritionist ▶ Livestock Geneticist ▶ Meat Science Researcher ▶ Physiologist ▶ Wildlife Biologist ▶ USDA Inspector ▶ Veterinarian
POSTSECONDARY	Year 13	English Composition	Algebra	Chemistry	American Government	All plans of study need to meet learners' career goals with regard to required degrees, licenses, certifications or journey worker status. Certain local student organization activities may also be important to include.	• Orientation to Animal Science • Survey of the Animal Industry	
POSTSECONDARY	Year 14	Speech/ Oral Communication		Biological Science	American History Geography		• Animal Anatomy and Physiology • Working with Animals	
POSTSECONDARY	Year 15	Technical Writing	Statistics	Organic Chemistry Microbiology	Political Science		• Livestock Management • Continue Courses in the Area of Specialization	
POSTSECONDARY	Year 16	Continue courses in the area of specialization.					• Complete Animal Systems Major (4-Year Degree Program)	

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SAMPLE

Creating Your Institution's Own Instructional Plan of Study

With a team of partners (secondary/postsecondary teachers and faculty, counselors, business/industry representatives, instructional leaders, and administrators), use the following steps to develop your own scope and sequence of career and technical courses as well as degree major courses for your institution's plan of study.

1 Crosswalk the Cluster Foundation Knowledge and Skills (available at **http://www.careerclusters.org/goto.cfm?id=82**) to the content of your existing secondary and postsecondary programs/courses.

2 Crosswalk the Pathway Knowledge and Skills (available at **http://www.careerclusters.org/goto.cfm?id=3**) to the content of your existing secondary/postsecondary programs and courses.

3 Based on the crosswalks in steps 1 and 2, determine which existing programs/courses would adequately align to (cover) the knowledge and skills. These programs/courses would be revised to tighten up any alignment weaknesses and would become a part of a sequence of courses to address this pathway.

4 Based on the crosswalks in steps 1 and 2, determine what new courses need to be added to address any alignment weaknesses.

5 Sequence the **content** and **learner outcomes** of the existing programs/courses identified in step 3 and new courses identified in step 4 into a course sequence leading to preparation for all occupations within this pathway. (See list of occupations on page 1 of this document.)

6 The goal of this process would be a series of courses and their descriptions. The names of these courses would be inserted into the *Career and Technical Courses* column on the Plan of Study on page 1 of this document.

7 The SAMPLE on page 4 is a **sample result** of steps 1-6, and these course titles are inserted into the Plan of Study on page 1 of this document.

8 Crosswalk your state academic standards and applicable national standards (e.g., for mathematics, science, history, language arts, etc.) to the sequence of courses formulated in step 6.

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SAMPLE Sequence of Courses for ▶ Instructional Leaders ▶ Administrators ▶ Counselors ▶ Teachers/Faculty

SAMPLE

Below are suggested courses that could result from steps 1-6 above. However, as an educational institution, course titles, descriptions and the sequence will be your own. This is a good model of courses for you to use as an example and to help you jump-start your process. Course content may be taught as concepts within other courses, or as modules or units of instruction.

The following course is based on the Cluster Foundation Knowledge and Skills found at http://www.careerclusters.org/goto.cfm?id=82. These skills are reinforced through Supervised Agricultural Experience (SAE) programs including entrepreneurial, work-based, research or service learning. Skills are also reinforced and the SAE supported through participation in appropriate FFA activities.

#1

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. This may be taught as a career exploration course in conjunction with other foundation Career Cluster courses.

The following course is based on the Cluster Foundation Knowledge and Skills as well as the Pathway Knowledge and Skills found at http://www.careerclusters.org/goto.cfm?id=3. These skills are reinforced through participation in FFA.

#2

Introduction to Animal Science: This course focuses on the basic scientific principles and processes that are involved in animal physiology, breeding and genetics, nutrition, and care and welfare in preparation for an animal systems career major. Topics include animal diseases, introduction to animal science, animal nutrition, animal science issues, career opportunities and animal evaluation.

The following courses expose students to Pathway Knowledge and Skills found at http://www.careerclusters.org/goto.cfm?id=3 and should include an appropriate Supervised Agricultural Experience (SAE) and FFA activities that support classroom/laboratory and SAE learnings.

#3

Advanced Animal Science: This course includes advanced scientific principles and communication skills that build on the knowledge and skills learned in Introduction to Animal Science. Topics include animal waste management, animal science economics, animal health and nutrition, decision making and global concerns in the industry including marketing, genetics and breeding. Work-based learning strategies are used to reinforce content, including but not limited to internships, agriscience projects, apprenticeships and supervised agricultural experience.

#4

Small Animal Specialization: This course provides instruction on animal husbandry topics related to small animals that are served by a veterinarian. This course includes breeding, grooming, training, care and marketing of animals that fit into this category with opportunities for students to gain hands-on experience through work-based learning and leadership experiences.

#5

Equine Science: This course focuses on the basic scientific principles and processes related to equine physiology, breeding, nutrition, training and care in preparation for a career in the equine industry. Students will gain hands-on experience through work-based learning and leadership experiences.

#6

Biotechnology and Agricultural Science Research: This course provides instruction in the technologically advanced world of agricultural systems and life sciences, with exposure to the latest techniques and advances in biotechnology with a strong emphasis on hands-on and work-based activities.

#7

Orientation to Animal Science: This course orients the students to postsecondary study of animal systems and provides information regarding challenges and career opportunities for the animal scientist. Opportunities are provided to develop personal goals, develop a portfolio and develop interpersonal skills in the context of pursuing a career in animal science.

#8

Survey of the Animal Industry: This course provides information on breeds, basic management and marketing of animals in addition to composition, evaluation and marketing of animals and animal products.

#9

Animal Anatomy and Physiology: This course provides knowledge of anatomy and physiology to produce and/or manage animals in a domesticated or natural environment and provides the basis for study of conformation, production and pathological processes of diseases of wild, domestic and exotic animals.

#10

Working with Animals: This course provides hands-on introductory skills for recognizing animal behavior, proper care and management. It also teaches skills related to health observation, nutrition, animal movement, identification, management procedures, environmental assessment, reproduction and animal performance.

#11

Livestock Management: This course presents current practices and strategies needed to profitably produce high-quality animals. Lab exercises provide hands-on exposure to management of animals in all stages of production.

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Notes