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## Course of Study: Competency Profiles and Instructional Calendars

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A course of study takes each course that will be taught in the secondary agriculture program, estimates the number of instructional periods to be devoted to the instructional units, and then outlines the lessons to be taught along with the estimated number of instructional periods (days) to be devoted to each lesson. The total number of instructional periods should correspond with the number of days in the school calendar. Programs where the school district is utilizing the seven-period system should plan for 180 instructional periods with 50 minutes of instructional time for each period. Programs in school districts using the eight-block system should plan for 90 instructional periods with 90 minutes of instructional time for each period. The days per unit and lesson should be carefully developed for each school; no one course of study will fit all Missouri schools.

### Sample Agricultural Science I Instructional Unit Outline

Instructional Units	Proposed Number of Instructional Periods		
Careers and Personal Development	5		
Leadership and the FFA	15		
Developing an SAE program and using the Agriculture Record Book	20		
Animal Science Core Units: Introduction to Animal Reproduction and Introduction to Animal Nutrition	25		
Animal Science Elective Units (select from the following): <table style="width: 100%; border: none;"> <tr> <td style="border: none; width: 50%;"> <ul style="list-style-type: none"> <li>▪ Introduction to Beef Production</li> <li>▪ Introduction to Swine Production</li> <li>▪ Introduction to Sheep Production</li> <li>▪ Introduction to Specialty Animals Production</li> </ul> </td> <td style="border: none; width: 50%;"> <ul style="list-style-type: none"> <li>▪ Equine Science</li> <li>▪ Introduction to Animal Products</li> <li>▪ Poultry Production</li> <li>▪ Entomology</li> </ul> </td> </tr> </table>	<ul style="list-style-type: none"> <li>▪ Introduction to Beef Production</li> <li>▪ Introduction to Swine Production</li> <li>▪ Introduction to Sheep Production</li> <li>▪ Introduction to Specialty Animals Production</li> </ul>	<ul style="list-style-type: none"> <li>▪ Equine Science</li> <li>▪ Introduction to Animal Products</li> <li>▪ Poultry Production</li> <li>▪ Entomology</li> </ul>	70
<ul style="list-style-type: none"> <li>▪ Introduction to Beef Production</li> <li>▪ Introduction to Swine Production</li> <li>▪ Introduction to Sheep Production</li> <li>▪ Introduction to Specialty Animals Production</li> </ul>	<ul style="list-style-type: none"> <li>▪ Equine Science</li> <li>▪ Introduction to Animal Products</li> <li>▪ Poultry Production</li> <li>▪ Entomology</li> </ul>		
Introduction to Agribusiness	10		
Agricultural Mechanization (hand tools, power tools, arc welding, oxyfuel cutting, tool sharpening and reconditioning, woodworking and painting and finishing)	35		
<b>Total</b>	<b>180</b>		

Note. Based on a seven-period system with 50 minutes of instructional time per period.

## Sample Agricultural Science II Instructional Unit Outline

Instructional Units	Proposed Number of Instructional Periods		
Leadership II and the FFA	8		
Career and Personal Development II	5		
Analyzing the SAE program	5		
Plant Science Core Units: Soils and Plant Science	25		
Plant Science Elective Units (select from the following): <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> <li>▪ Crop Science</li> <li>▪ Entomology</li> <li>▪ Fruit and Vegetable Production</li> </ul> </td> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> <li>▪ Forestry</li> <li>▪ Introduction to Grassland Management</li> </ul> </td> </tr> </table>	<ul style="list-style-type: none"> <li>▪ Crop Science</li> <li>▪ Entomology</li> <li>▪ Fruit and Vegetable Production</li> </ul>	<ul style="list-style-type: none"> <li>▪ Forestry</li> <li>▪ Introduction to Grassland Management</li> </ul>	25
<ul style="list-style-type: none"> <li>▪ Crop Science</li> <li>▪ Entomology</li> <li>▪ Fruit and Vegetable Production</li> </ul>	<ul style="list-style-type: none"> <li>▪ Forestry</li> <li>▪ Introduction to Grassland Management</li> </ul>		
Agricultural Mechanization (power tools, arc welding, oxy-acetylene welding, spray painting and finishing, tool sharpening and reconditioning, cold metal work, and material selection, plan reading, and interpretation)	22		
<b>Total</b>	<b>90</b>		

Note. Based on an eight-block system with 90 minutes of instructional time per period.

### Course Competency Profiles

In developing an educational program the knowledge and skills that students should attain during the program must be identified. The knowledge and skills are written in the form of competencies and identified on competency profiles. A course competency can be used to identify a learner's performance level on each competency (i.e., mastered, requires supervision, not mastered, or no exposure). The performance information recorded on profiles (or in equivalent computerized records) should be based on appropriate assessments conducted in the classroom or laboratory. It is recommended that a file of completed evaluation forms and reports of test performance be maintained for all students. A course competency profile for Agricultural Science I can be found in the sample section of this chapter. Additional course competency profiles can be located on the *Program Planning Handbook* website (<http://dass.missouri.edu/aged/resources/handbook>), through the Instructional Materials Laboratory at the University of Missouri (<http://iml.missouri.edu/>), or the Missouri Center for Career Education (<http://missouricareereducation.org/curr/agricultureed1.html>).

### Instructional Calendars

Instructional calendars are a very important part of the educational program planning process. Serving as a time management tool, instructional calendars allocate time within a course and provide a guideline to be used when budgeting instructional time for the school year. The calendar is a systematic method of instructional planning by outlining the instructional units and lessons to be taught in each course. The calendar assists in sequencing the course work, allowing the instructor to be better prepared by knowing when and what lessons are to be taught. The calendar is not rigid in its construction but is flexible to permit changes when needed. It is important to remember that the calendar is not a substitute for a good instructional (lesson) plan. The instructional calendar has four main components:

1. an outline of the instructional units to be taught in the course,

2. the week during the semester/year when each instructional will be taught,
3. the lessons (competencies) to be taught for each instructional unit, and
4. the planned number of instructional periods (days) to be devoted to each lesson.

<b>Instructional Calendar</b>		
_____ Agriculture Department		
_____		
(Course Title)		
Semester: _____		School Year: 20__ - 20__
Week	Unit	Lessons (instructional periods)

- The following samples are provided:**
- Agricultural Science I Course Competency Profile
  - Sample Instructional Calendar for Agricultural Science I

# Agricultural Science I

**Directions:** Evaluate the student by checking the appropriate number to indicate the degree of competence. The rating for each task should reflect employability readiness rather than the grades given in class.

**Rating Scale:** **3 = Mastered** – can work independently with no supervision  
**2 = Requires Supervision** – can perform task completely with limited supervision  
**1 = Not Mastered** – requires instruction and close supervision  
**N = No Exposure** – no experience or knowledge regarding this task

3	2	1	N	
				<b>Leadership and the FFA I</b> ( <i>revised June 2004</i> )
				1. Define leadership and leadership styles.
				2. Identify characteristics of effective leadership.
				3. Define individual roles and responsibilities within an organization.
				4. Discuss the purpose of an organization’s mission, vision, and goals (program of activities).
				5. Identify leadership opportunities within the FFA organization.
				6. Demonstrate effective verbal communication.
				7. Demonstrate skills needed for participation in meetings.

3	2	1	N	
				<b>Career and Personal Development I</b> ( <i>revised June 2004</i> )
				1. Identify career opportunities in the agricultural industry.
				2. List and classify agricultural occupations by their job requirements and benefits.
				3. Create a personal vision, mission, and goals.

3	2	1	N	
				<b>Developing an SAE Program</b>
				1. List the benefits of a good SAE program.
				2. Identify SAE projects for each area within the community.
				3. Set goals for the SAE program.
				4. Select projects for the SAE program.

3	2	1	N	
				<b>Using the Missouri Agricultural Record Book for Secondary Students</b>
				1. Complete forms needed to open the Missouri Agricultural Record Book for Secondary Students.
				2. Complete a budget for the SAE program.
				3. Complete inventory and financial statement forms for the Missouri Agricultural Record Book for Secondary Students.
				4. Complete receipt and expenditure forms in the Missouri Agricultural Record Book for Secondary Students.
				5. Complete additional forms in the Missouri Agricultural Record Book for Secondary Students.

3	2	1	N

### **Introduction to Animal Reproduction**

1. Explain the purpose of male reproduction parts and hormones.
2. Explain the purpose of female reproduction parts and hormones.
3. Explain the role of puberty and the estrous cycle in reproduction.
4. Describe conception and gestation.
5. Identify the important factors of parturition.
6. Define the role of genetics in reproduction.
7. Compare management practices for genetic improvement.

3	2	1	N

### **Introduction to Animal Nutrition**

1. Describe the parts and functions of the monogastric digestive system.
2. Describe the parts and functions of the ruminant digestive system.
3. Identify the importance of maintaining the nutritional needs of the animal.
4. Identify how the nutritional needs of animals may be met.
5. Demonstrate the procedure for balancing a ration for crude protein.

3	2	1	N

### **Introduction to Beef Production**

1. Describe the importance of the beef industry in Missouri.
2. Identify the major beef breeds and their significance to the beef industry.
3. Utilize the available information to select beef cattle.
4. Compare various beef production systems.
5. Develop a herd health program.
6. Identify management factors important to profitable beef production.
7. Evaluate issues of concern to the beef industry.

3	2	1	N

### **Introduction to Swine Production**

1. Describe the importance of the swine industry in Missouri and the United States.
2. Identify the major swine breeds and their significance in the industry.
3. Use available information to select swine.
4. Compare various production systems.
5. Develop a herd health program.
6. Identify management factors important to profitable hog production.
7. Assess issues concerning the swine industry.

3	2	1	N

### **Sheep Production**

1. Describe enterprises in sheep production.
2. Outline the decisions used for selection of sheep.
3. Identify management practices for sheep.
4. Explain procedures required in managing a breeding flock.
5. Describe strategies of sheep management that will most likely result in a profit.

3	2	1	N

### Introduction to Dairy Production

1. Describe the importance of the dairy industry in Missouri (1006)
  2. Identify the major dairy breeds in Missouri and their significance to the dairy industry (1007)
  3. Use available information to select dairy cattle (1008)
  4. List management factors important to profitable dairy production (1009)
  5. Develop a herd health program (1003)
  6. Evaluate issues concerning the dairy industry (1010)
- Other: \_\_\_\_\_

3	2	1	N

### Poultry

1. Describe the importance of the poultry industry in Missouri.
2. Select and evaluate poultry.
3. Describe poultry production and management systems.
4. Explain poultry reproduction processes.
5. Identify poultry flock health issues.
6. Identify procedures involved in processing poultry products.

3	2	1	N

### Equine Science

1. Identify horse types, breeds, and uses.
2. Discuss behavior principles of the horse.
3. Identify ideal selection and conformation traits.
4. Identify basic genetic and reproductive characteristics in horses.
5. Develop a herd health program.
6. Discuss hoof structures and care.
7. Identify a ration to meet the nutritional needs of horses.
8. Identify proper tack, equipment, and facilities for horses.
9. Identify basic techniques of handling horses.
10. Examine career opportunities.

3	2	1	N

### Introduction to Specialty Animal Production

1. Identify possibilities for specialty animal production.
2. Determine the profitability of selected specialty animal enterprises.
3. Evaluate the comparative advantages (labor vs. capital) of the selected specialty animal enterprise.
4. Identify local, state and federal regulations, as they apply to specialty animal production.
5. Evaluate the marketing options available for specialty animals.

3	2	1	N

### **Introduction to Animal Products**

1. Describe the importance of animal products.
2. Describe beef carcass fabrication and grading.
3. Describe pork carcass fabrication and grading.
4. Describe ovine carcass fabrication and grading.
5. Identify and grade poultry products.
6. Identify and describe types of dairy products.

3	2	1	N

### **Introduction to Agribusiness**

1. Describe the role of agricultural business in the economy.
2. Assess career opportunities available in agricultural businesses.
3. Identify personal skills necessary for success in agricultural businesses.
4. Identify economic principles of agricultural businesses.
5. Identify business activities in agricultural businesses.

3	2	1	N

### **Entomology**

1. Discuss the significance of entomology.
2. Prepare an insect collection.
3. Describe the procedure for classifying insects to order.
4. Describe methods of pest control.
5. Describe the factors in the selection and application of insecticides.
6. Identify safety guidelines for insecticide use.
7. Outline an IPM plan.

3	2	1	N

### **Hand Tools**

1. Identify common hand tools used in woodworking.
2. Identify common hand tools used in metalworking.

3	2	1	N

### **Power Tools**

1. Analyze the uses and safety procedures of common power tools used in woodworking.
2. Analyze the uses and safety procedures of common power tools used in metalworking.

3	2	1	N

### **Arc Welding**

1. Identify basic safety and maintenance procedures for arc welding.
2. Identify the major parts of a shielded metal arc welder.
3. Describe how a shielded metal arc welder works.
4. Demonstrate striking an arc.
5. Demonstrate welding common joints.

3	2	1	N

### **Oxyfuel Cutting**

1. Identify safety procedures for cutting with oxyfuel.
2. Describe the procedures for cutting with oxyfuel.
3. Demonstrate the procedures for cutting with oxyfuel.

3	2	1	N

### **Tool Sharpening and Reconditioning**

1. Describe the procedures for reconditioning and sharpening common hand tools.
2. Recondition a center punch.
3. Sharpen a cold chisel.
4. Recondition a screwdriver.

3	2	1	N

### **Woodworking**

1. Demonstrate the used of common measuring and layout tools used in woodworking.
2. Demonstrate the use of common handsaws and power saws used in woodworking.
3. Demonstrate the use of common handheld tools used to bore and drill in wood.
4. Demonstrate the use of common fasteners used in woodworking.

3	2	1	N

### **Painting and Finishing**

1. Identify the safety procedures for painting.
2. Demonstrate the procedures for applying paint with a paintbrush.

# Instructional Calendar

SAMPLE                      Agriculture Department

Agricultural Science I

Course Title

First    20 08 - 20 09  
Semester    School Year

Week	Unit	Lessons (instructional periods)
1	Careers and Personal Development	Orientation to the agriculture program (1) Examining career opportunities in the agriculture industry (2) Classifying agricultural occupations by job requirements and benefits (1) Creating a personal vision, mission and goals (1)
2	Leadership and the FFA	Defining leadership and leadership styles (2) Identifying characteristics of effective leadership (1) Defining the roles and responsibilities of individuals within an organization (2)
3		Determining the purpose of an organization's mission, vision, and goals (program of activities) (2) Determining the leadership opportunities in the FFA organization (1) Demonstrating effective verbal communication (2)
4		Demonstrating skills needed to participate in business meetings (5)
5	Introduction to Animal Nutrition	Analyzing the importance and magnitude of the animal industry (1) Describing the parts & functions of the monogastric digestive system (2) Describing the parts and functions of the ruminant digestive system (2)
6		Laboratory activity with monogastric and ruminant digestive systems (2) Identifying the importance of maintaining nutritional needs (1) Determining how to meet an animal's nutritional needs (2)
7	Introduction to Animal Reproduction	Demonstrating the procedures for balancing a ration for crude protein (3) Explaining the purpose of male reproductive parts and hormones (2)
8		Explaining the purpose of the female reproductive parts and hormones (2) Determining the role of puberty and the estrous cycle in reproduction (2) Describing conception and gestation (1)
9		Identifying the important factors of parturition (1) Defining the role of genetics in reproduction (3) Comparing management practices for genetic improvement (1)
10	SAE Programs	Assessing the benefits of a good SAE program (2) Identifying the different SAE opportunities (3)
11		Setting goals for the SAE program (2) Selecting projects and planning and conducting the SAE program (3)
12	Introduction to Animal	Assess the importance of animal products in our lives (2) Describe beef carcass fabrication and grading (3)

<b>Week</b>	<b>Unit</b>	<b>Lessons (instructional periods)</b>
13	Products	Describe pork carcass fabrication and grading (2) Identify the grading process of poultry products (3)
14		Describe sheep (ovine) carcass fabrication and grading (2) Identify and describe types of dairy products (3)
15	Introduction to Beef Production	Examining the importance of the beef industry to Missouri (2) Assessing the significance of the major beef breeds to the industry (2) Selecting beef cattle based on visual appraisal (1)
16		Selecting beef cattle on visual appraisal and EPD data (3) Comparing the various beef production systems (2)
17		Developing a herd health program (2) Identifying management factors leading to profitable beef production (3)
18	Agriculture Record Book	Assessing the purpose and value of the SAE/FFA record book (1) Completing receipt and expenditure forms (4)

# Instructional Calendar

SAMPLE                      Agriculture Department

Agricultural Science I

Course Title

Second    20 08 - 20 09  
Semester    School Year

Week	Unit	Lessons (instructional periods)
19	Agriculture Record Book	Completing the cash flow, inventory, and financial statement forms (4) Documenting FFA awards and recognitions (1)
20	Equine Science	Examining the horse industry and career opportunities (2) Identifying horse types, breeds, and uses, and behavior principles (3)
21		Identify ideal selection and confirmation traits (2) Identifying basic genetic and reproductive characteristics in horses (2) Caring for horses - developing a herd health program (1)
22		Defining hoof structures and care (1) Selecting a ration to meet the nutritional needs of horses (1) Determining the tack, equipment, and facilities needed for horse care (1) Demonstrating the basic techniques of handling horses (2)
23		Entomology
24	Identifying common insects in Missouri (3) Assess the different methods of pest control (1) Selecting, applying, and safe use of insecticides (1)	
25	Poultry	Assessing the importance of the poultry industry (1) Describing poultry production and management systems (2) Explaining poultry reproduction processes (1) Identify poultry flock health issues (1)
26		Identifying procedures used in processing poultry products (1) Selecting and evaluating poultry products (4)
27		Selecting and evaluating poultry products (5)
28	Agricultural Mechanization	Introduction to mechanics unit, laboratory safety and projects (2) Demonstrating proper use of common woodworking hand tools (3)
29		Demonstrating use and safety of common woodworking power tools (2) Using common woodworking measuring and layout tools (1) Identifying and using common fasteners used in woodworking (1) Demonstrating procedures for applying paint with a paintbrush (1)
30		Identifying basic safety and maintenance procedures for arc welding (1) Identify the major parts of an arc welder and how the welder operates (2) Demonstrating procedures for striking an arc (2)

<b>Week</b>	<b>Unit</b>	<b>Lessons (instructional periods)</b>
31		Demonstrating procedures for welding common joints (2) Laboratory - arc welding assignments and woodworking project (3)
32	Agricultural Mechanization	Laboratory - arc welding assignments and woodworking project (5)
33		Laboratory - arc welding assignments and woodworking project (5)
34		Laboratory - arc welding assignments and woodworking project (5)
35	Introduction to Agribusiness	Defining the role of agricultural business in the economy (2) Assessing career opportunities available in agricultural business (1) Identifying personal skills necessary for success in agribusiness (2)
36		Identifying economic principles of agricultural businesses (3) Defining business activities in agribusiness (2)