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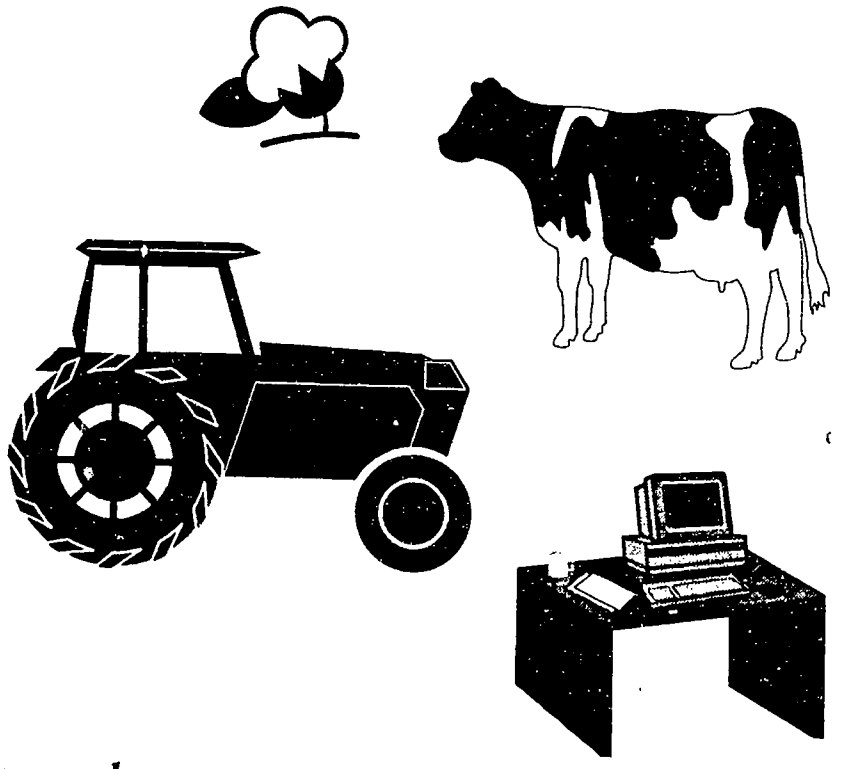
ABSTRACT

This document, which is intended for use by community and junior colleges throughout Mississippi, contains curriculum frameworks for the course sequences in the agricultural business and management technology programs cluster. Presented in the introductory section are a framework of courses and concentrations, a description of the program, and suggested course sequence for each of three concentrations: agricultural business and management, animal husbandry, and field crops. Section I lists baseline competencies for the program, and section II consists of outlines for each of the following courses in the sequence: agricultural business and management courses, animal husbandry courses, field crops courses, related vocational-technical courses, and related academic courses. Each course outline contains some/all of the following: course name and abbreviation; course classification; course description; prerequisites; and competencies and suggested objectives. Recommended tools and equipment are listed in section III. Appended are lists of related academic topics and workplace skills for the 21st century and student competency profiles for both courses. (YLB)

Mississippi Curriculum Framework for Agricultural Business And Management Technology Cluster

ED 397 280



Postsecondary
Vocational and Technical Education
1995

MISSISSIPPI

CURRICULUM FRAMEWORK

FOR

AGRICULTURAL BUSINESS
AND MANAGEMENT TECHNOLOGY CLUSTER

AGRICULTURAL BUSINESS AND MANAGEMENT TECHNOLOGY
(CIP: 01.0302 - Agricultural Animal Husbandry/Prod)
(CIP: 01.0501 - Agric Supplies Retail & Wholesale)

ANIMAL HUSBANDRY TECHNOLOGY
(CIP: 01.0302 - Agricultural Animal Husbandry/Prod)

FIELD CROPS TECHNOLOGY
(CIP: 01.0104 - Farm & Ranch Mgmt.)

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1995

FOREWORD

In order to survive in today's global economy, businesses and industries have had to adopt new practices and procedures. Total quality management, statistical process control, participatory management, and other concepts of high performance work organizations are practices by which successful companies survive. Employers now expect their employees to be able to read, write, and communicate effectively; solve problems and make decisions; and interact with the technologies that are prevalent in today's workplace. Vocational-technical education programs must also adopt these practices in order to provide graduates who can enter and advance in the changing work world.

The curriculum framework in this document reflect these changes in the workplace and a number of other factors that impact on local vocational-technical programs. Federal and state legislation calls for articulation between high school and community college programs, integration of academic and vocational skills, and the development of sequential courses of study that provide students with the optimum educational path for achieving successful employment. National skills standards, developed by industry groups and sponsored by the U. S. Departments of Education and Labor, provide vocational educators with the expectations of employers across the United States. All of these factors are reflected in the framework found in this document.

Each postsecondary program of instruction consists of a program description and a suggested sequence of courses which focus on the development of occupational competencies. Each vocational-technical course in this sequence has been written using a common format which includes the following components:

- Course Name - A common name that will be used by all community/junior colleges in reporting students.
- Course Abbreviation - A common abbreviation that will be used by all community/junior colleges in reporting students.
- Classification - Courses may be classified as:
  - Vocational-technical core - A required vocational-technical course for all students.
  - Vocational-technical elective - An elective vocational-technical course.
  - Related academic course - An academic course which provides academic skills and knowledge directly related to the program area.
  - Academic core - An academic course which is required as part of the requirements for an Associate degree.
- Description - A short narrative which includes the major purpose(s) of the course and the recommended number of hours of lecture and laboratory activities to be conducted each week during a regular semester.

- Prerequisites - A listing of any prerequisite courses that must be taken prior to or on enrollment in the course.
- Competencies and Suggested Objectives - A listing of the competencies (major concepts and performances) and of the suggested student objectives that will enable students to demonstrate mastery of these competencies.

The following guidelines were used in developing the program(s) in this document and should be considered in compiling and revising course syllabi and daily lesson plans at the local level:

- The content of the courses in this document reflects approximately 75 percent of the time allocated to each course. For example, in a four semester hour course consisting of 30 hours lecture and 120 hours of laboratory activities, approximately 22 hours of lecture and 90 hours of lab should be taken by the competencies and suggested objectives identified in the course framework. The remaining 25 percent of each course should be developed at the local district level and may reflect:
  - Additional competencies and objectives within the course related to topics not found in the State framework, including activities related to specific needs of industries in the community college district.
  - Activities which develop a higher level of mastery on the existing competencies and suggested objectives.
  - Activities and instruction related to new technologies and concepts that were not prevalent at the time the current framework was developed/revised.
  - Activities which implement components of the Mississippi Tech Prep initiative, including integration of academic and vocational-technical skills and coursework, school-to-work transition activities, and articulation of secondary and postsecondary vocational-technical programs.
  - Individualized learning activities, including worksite learning activities, to better prepare individuals in the courses for their chosen occupational area.

- Sequencing of the course within a program is left to the discretion of the local district. Naturally, foundation courses related to topics such as safety, tool and equipment usage, and other fundamental skills should be taught first. Other courses related to specific skill areas and related academics, however, may be sequenced to take advantage of seasonal and climatic conditions, resources located outside of the school, and other factors.

- Programs that offer an Associate of Applied Science degree must include a minimum 15 semester credit hour academic core. Specific courses to be taken within this core are to be determined by the local district. Minimum academic core courses are as follows:

- 3 semester credit hours Math/Science Elective
- 3 semester credit hours Written Communications Elective
- 3 semester credit hours Oral Communications Elective
- 3 semester credit hours Humanities/Fine Arts Elective
- 3 semester credit hours Social/Behavioral Science Elective

It is recommended that courses in the academic core be spaced out over the entire length of the program, so that students complete some academic and vocational-technical courses each semester. Each community/junior college has the discretion to select the actual courses that are required to meet this academic core requirement.

- In instances where secondary programs are directly related to community and junior college programs, competencies and suggested objectives from the high school programs are listed as Baseline Competencies. These competencies and objectives reflect skills and knowledge that are directly related to the community and junior college vocational-technical program. In adopting the curriculum framework, each community and junior college is asked to give assurances that:
  - students who can demonstrate mastery of the Baseline Competencies do not receive duplicate instruction, and
  - students who cannot demonstrate mastery of this content will be given the opportunity to do so.

- The roles of the Baseline Competencies are to:
  - Assist community/junior college personnel in developing articulation agreements with high schools, and
  - Ensure that all community and junior college courses provide a higher level of instruction than their secondary counterparts

- The Baseline Competencies may be taught as special "Introduction" courses for 3-6 semester hours of institutional credit which will not count toward Associate degree requirements. Community and junior colleges may choose to integrate the Baseline Competencies into ongoing courses in lieu of offering the "Introduction" courses or may offer the competencies through special projects or individualized instruction methods.

- Technical elective courses have been included to allow community colleges and students to customize programs to meet the needs of industries and employers in their area.

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AGRICULTURAL BUSINESS AND MANAGEMENT TECHNOLOGY CLUSTER

FRAMEWORK OF COURSES AND CONCENTRATIONS

(X = Required Course; E = Elective)	AGB	AH	FC
AGRICULTURAL BUSINESS AND MANAGEMENT COURSES			
Agricultural Records	X	X	X
Agricultural Sales	X	E	E
Applied Agricultural Economics	X	E	X
Applied Principles of Animal Production	X	X	X
Applied Principles of Plant Production	X	X	X
Applied Soils-Conservation and Use	X	X	X
Human Relations in Agribusiness	X	E	E
Principles of Agricultural Management	X	X	E
Principles of Agricultural Marketing	X	X	X
Special Problem in Agricultural Business and Management	E	E	E
Supervised Agricultural Experience	X	E	E
Survey of Agricultural Technology I, II, III, IV	X	X	X
ANIMAL HUSBANDRY COURSES			
Animal Reproduction		X	
Applied Animal Nutrition	E	X	
Beef Production I	E	X	E
Beef Production II	E	X	E
Fish Management	E	E	E
Fitting/Grooming/Judging	E	E	
Horse Production		X	
Principles of Meats Processing I		E	
Principles of Meats Processing II		E	
Swine Production	E	E	
FIELD CROPS COURSES			
Agricultural Machinery and Shop Management	E		X
Agricultural Structures	E		E
Crop Production (Cotton and Rice)			X
Crop Production (General)	E	E	X
Forage and Pasture Crops	E	E	
Insects and Controls			X
Weed Control			X

(X = Required Course; E = Elective)	AGB	AH	FC
RELATED VOCATIONAL/TECHNICAL COURSES			
Introduction to Computers	X	X	X
Maintenance of Tractors, Machinery, and Equipment		X	
Water Quality Management			E
Applied Business Mathematics	E		X
RELATED ACADEMIC COURSES			
Business Mathematics	E	E	E
Business Law	E		E
General Chemistry Survey (Basic)			E
Introduction to Computer Concepts	E	E	E
Poultry Production	E	E	E
Principles of Chemistry I			E
Vegetable Production	E		E

AGRICULTURAL BUSINESS AND MANAGEMENT TECHNOLOGY

AGRIBUSINESS MANAGEMENT CONCENTRATION

PROGRAM DESCRIPTION

The Agribusiness Management option is a program designed to provide students with training in a variety of agriculturally related areas. The program is designed for students desiring to enter the broad range of jobs related to the management of agricultural enterprises and the marketing and sales of agricultural supplies and products. The program involves both technical and academic courses, with provisions for related activities along with on-the-job training (internships).

Emphasis is placed on plant, animal, and soil sciences, along with training in management techniques in production, marketing, and sales. This program relies upon computer agricultural business simulations utilizing the Agricultural Satellite Information System (ASIS).

PROGRAM REQUIREMENTS

The Associate of Applied Science degree is awarded upon successful completion of 64 semester credit hours of coursework. Students completing the first year of the program of study, 32 semester credit hours, are eligible to receive a certificate in Agricultural Business and Management.

The required courses for the certificate program include:

3 sch	Applied Agricultural Economics (AGT 2263)	4 sch	Applied Soils-Conservation and Use (AGT 1714)
4 sch	Applied Principles of Animal Production (AGT 1214)	4 sch	Introduction to Computers (CPT 1114)†
3 sch	Applied Principles of Plant Production (AGT 1313)	1 sch	Survey of Agricultural Technology (AGT 1111)
3 sch	Agricultural Sales (AGT 2213)	6 sch	Vocational/Technical Electives
3 sch	Agricultural Records (AGT 1613)		

† Students who are computer literate may substitute Introduction to Computer Concepts (CSC 1113) or another acceptable computer course.

AGRICULTURAL BUSINESS AND MANAGEMENT TECHNOLOGY
AGRIBUSINESS MANAGEMENT CONCENTRATION

SUGGESTED COURSE SEQUENCE*

Baseline Competencies for Agricultural Business and Management Technology**

FIRST YEAR

4 sch	Applied Principles of Animal Production (AGT 1214)
3 sch	Applied Principles of Plant Production (AGT 1313)
4 sch	Introduction to Computers (CPT 1114)†
3 sch	Math/Science Elective
1 sch	Survey of Agricultural Technology (AGT 1111, 1121, 1131, 1141)
15 sch	

3 sch	Applied Agricultural Economics (AGT 2263)
3 sch	Agricultural Sales (AGT 2213)
3 sch	Agricultural Records (AGT 1613)
4 sch	Applied Soils-Conservation and Use (AGT 1714)
3 sch	Written Communications Elective
16 sch	

SECOND YEAR

6 sch	Approved Electives
3 sch	Humanities/Fine Arts Elective
3 sch	Principles of Agricultural Management (AGT 1413)
3 sch	Social/Behavioral Science Elective
15 sch	

6 sch	Approved Electives
3 sch	Human Relations in Agribusiness (AGT 2313)
3 sch	Oral Communications Elective
3 sch	Principles of Agricultural Marketing (AGT 1513)
3-6 sch	Supervised Agricultural Experience [AGT 211(3-6)]
18-21 sch	

* Students who lack entry level skills in math, English, science, etc., will be provided related studies.

** Baseline competencies are taken from the high school Medical Assisting Technology program. Students who can document mastery of these competencies should not receive duplicate instruction. Students who cannot demonstrate mastery will be required to do so.

† Students who are computer literate may substitute Introduction to Computer Concepts (CSC 1113) or another acceptable computer course.

APPROVED ELECTIVES - AGRIBUSINESS MANAGEMENT

3 sch	Agricultural Machinery and Shop Management (AGT 2563)
3 sch	Agricultural Structures (AGT 2113)
3 sch	Applied Animal Nutrition (AGT 2663)
3 sch	Applied Business Mathematics (BOT 1313)
3 sch	Business Mathematics (BAD 1313)
3 sch	Beef Production I (AGT 2713)
3 sch	Beef Production II (AGT 2723)
3 sch	Business Law (BAD 2413)
3 sch	Crop Production (General) (AGT 2363)
3 sch	Fish Management (AGT 2513)
3 sch	Fitting/Grooming/Judging (AGT 1813)
3 sch	Forage and Pasture Crops (AGT 2613)
3 sch	Poultry Production (AGR 1333)
1-3 sch	Special Problem in Agricultural Business and Management [AGT 216(1-3)]
3 sch	Swine Production (AGT 2813)
3 sch	Vegetable Production (AGR 1333)

AGRICULTURAL BUSINESS AND MANAGEMENT TECHNOLOGY

ANIMAL HUSBANDRY CONCENTRATION

PROGRAM DESCRIPTION

The Animal Husbandry Concentration of Agricultural Business and Management Technology is designed to prepare the student for a career in the animal husbandry industry. Students will receive instruction in feeding, breeding, management, and health care of cattle, sheep, horses, swine, and poultry. In addition, the student will complete course work dealing with agricultural business management, marketing, record keeping, feed crops, and soils. This program relies upon computer agricultural business simulations utilizing the Agricultural Satellite Information System (ASIS).

PROGRAM REQUIREMENTS

The Associate of Applied Science degree may be granted to students who complete a minimum of 64 semester credit hours of coursework in the program. Upon completion of first year of the program of study, or 32 semester credit hours, the student may receive a certificate in Agricultural Business and Management. The required courses for the certificate course include:

3 sch	Agricultural Records (AGT 1613)	4 sch	Introduction to Computers (CPT 1114)†
4 sch	Applied Principles of Animal Production (AGT 1214)	3 sch	Math/Science Elective
3 sch	Applied Principles of Plant Production (AGT 1313)	3 sch	Principles of Agricultural Management (AGT 1413)
4 sch	Applied Soils-Conservation and Use (AGT 1714)	3 sch	Principles of Agricultural Marketing (AGT 1513)
3 sch	Maintenance of Tractors, Machinery, and Equipment (AMT 1414)	1 sch	Survey of Agricultural Technology (AGT 1111)
		1 sch	Vocational/Technical Elective

† Students who are computer literate may substitute Introduction to Computer Concepts (CSC 1113) or another acceptable computer course.

AGRICULTURAL BUSINESS AND MANAGEMENT TECHNOLOGY
ANIMAL HUSBANDRY CONCENTRATION

SUGGESTED COURSE SEQUENCE*

Baseline Competencies for Agricultural Business and Management Technology**

FIRST YEAR

4 sch	Applied Principles of Animal Production (AGT 1214)	3 sch	Agricultural Records (AGT 1613)
3 sch	Applied Principles of Plant Production (AGT 1313)	4 sch	Applied Soils-Conservation and Use (AGT 1714)
4 sch	Introduction to Computers (CPT 1114)†	3 sch	Maintenance of Tractors, Machinery, and Equipment (AMT 1414)
3 sch	Math/Science Elective	3 sch	Principles of Agricultural Marketing (AGT 1513)
3 sch	Principles of Agricultural Management (AGT 1413)	3 sch	Written Communications Elective
1 sch	Survey of Agricultural Technology (AGT 1111, 1121, 1131, 1141)		
18 sch		16 sch	

SECOND YEAR

3 sch	Applied Animal Nutrition (AGT 2663)	3 sch	Animal Reproduction (AGT 1913)
3 sch	Approved Electives	6 sch	Approved Electives
3 sch	Beef Production I (AGT 2713)	3 sch	Beef Production II (AGT 2723)
3 sch	Humanities/Fine Arts Elective	3 sch	Horse Production (AGT 2863)
3 sch	Social/Behavioral Science Elective	3 sch	Oral Communications Elective
15 sch		18 sch	

* Students who lack entry level skills in math, English, science, etc., will be provided related studies.

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** Baseline competencies are taken from the high school Agricultural Business and Management Technology program. Students who can document mastery of these competencies should not receive duplicate instruction. Students who cannot demonstrate mastery will be required to do so.

† Students who are computer literate may substitute Introduction to Computer Concepts (CSC 1113) or another acceptable computer course.

APPROVED ELECTIVES - ANIMAL HUSBANDRY

3 sch	Applied Agricultural Economics (AGT 2263)
3 sch	Business Mathematics (BAD 1313)
3 sch	Fish Management (AGT 2513)
3 sch	Fitting/Grooming/Judging (AGT 1813)
3 sch	Forage and Pasture Crops (AGT 2613)
3 sch	Human Relations in Agribusiness (AGT 2313)
3 sch	Principles of Meats Processing I (AGT 2913)
3 sch	Principles of Meats Processing II (AGT 2923)
3 sch	Poultry Production (AGR 2613)
1-3 sch	Special Problem in Agricultural Business and Management [AGT 216(1-3)]
1-6 sch	Supervised Agricultural Experience [AGT 211(1-6)]
3 sch	Swine Production (AGT 2813)
3 sch	Crop Production (General) (AGT 2363)
3 sch	Agricultural Sales (AGT 2213)

AGRICULTURAL BUSINESS AND MANAGEMENT TECHNOLOGY

FIELD CROPS CONCENTRATION

PROGRAM DESCRIPTION

The Field Crops Concentration of the Agricultural Business and Management Technology program is designed to provide students with a common core of management skills and additional training related to the production of agricultural crops. Emphasis in the second year is placed on production of field crops and weed and insect control. This program relies upon computer agricultural business simulations utilizing the Agricultural Satellite Information System (ASIS). Elective courses in the second year allow the students to tailor their educational program to their occupational objectives.

PROGRAM REQUIREMENTS

The Associate of Applied Science degree is awarded upon successful completion of a minimum of 64 semester credit hours. Students completing the first year of the program of study, 32 semester credit hours, are eligible to receive a certificate in Agricultural Business and Management. The required courses for the certificate program include:

3 sch	Agricultural Records (AGT 1613)
3 sch	Applied Agricultural Economics (AGT 2263)
4 sch	Applied Principles of Animal Production (AGT 1214)
3 sch	Applied Principles of Plant Production (AGT 1313)
4 sch	Applied Soils-Conservation and Use (AGT 1714)
4 sch	Introduction to Computers (CPT 1114)†
3 sch	Math/Science Elective
3 sch	Principles of Agricultural Marketing (AGT 1513)
1 sch	Survey of Agricultural Technology (AGT 1111)
4 sch	Vocational/Technical Electives

† Students who are computer literate may substitute Introduction to Computer Concepts (CSC 1113) or another acceptable computer course.

AGRICULTURAL BUSINESS AND MANAGEMENT TECHNOLOGY
FIELD CROPS CONCENTRATION

SUGGESTED COURSE SEQUENCE*

Baseline Competencies for Agricultural Business and Management Technology**

FIRST YEAR

4 sch	Applied Principles of Animal Production (AGT 1214)	3 sch	Applied Agricultural Economics (AGT 2263)
3 sch	Applied Business Mathematics (BOT 1313)	3 sch	Agricultural Records (AGT 1613)
3 sch	Applied Principles of Plant Production (AGT 1313)	4 sch	Applied Soils- Conservation and Use (AGT 1714)
4 sch	Introduction to Computers (CPT 1114)†	3 sch	Principles of Agricultural Marketing (AGT 1513)
3 sch	Math/Science Elective	3 sch	Written Communications Elective
1 sch	Survey of Agricultural Technology (AGT 1111, 1121, 1131, 1141)		
15 sch		16 sch	

SECOND YEAR

3 sch	Approved Electives	3 sch	Agricultural Machinery and Shop Management (AGT 2563)
3 sch	Insects and Controls (AGT 2463)	6 sch	Approved Elective
3 sch	Oral Communications Elective	3 sch	Crop Production (Cotton and Rice) (AGT 2373)
3 sch	Crop Production (General) (AGT 2363)	3 sch	Humanities/Fine Arts Elective
3 sch	Weed Control (AGT 2413)	3 sch	Social/Behavioral Science Elective
15 sch		18 sch	

* Students who lack entry level skills in math, English, science, etc., will be provided related studies.

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** Baseline competencies are taken from the high school Agricultural Business and Management Technology program. Students who can document mastery of these competencies should not receive duplicate instruction. Students who cannot demonstrate mastery will be required to do so.

† Students who are computer literate may substitute Introduction to Computer Concepts (CSC 1113) or another acceptable computer course.

APPROVED ELECTIVES - FIELD CROPS

3 sch	Agricultural Sales (AGT 2213)
3 sch	Agricultural Structures (AGT 2113)
3 sch	Business Mathematics (BAD 1313)
3 sch	Beef Production I (AGT 2713)
3 sch	Beef Production II (AGT 2723)
3 sch	Business Law (BAD 2413)
3 sch	Fish Management (AGT 2513)
3 sch	General Chemistry Survey (Basic) (CHE 1114)
3 sch	Human Relations in Agribusiness (AGT 2323)
3 sch	Introduction to Computer Concepts (CSC 1113)†
3 sch	Principles of Agricultural Management (AGT 1413)
4 sch	Principles of Chemistry I (CHE 1314)
3 sch	Poultry Production (AGR 2613)
1-3 sch	Special Problem in Agricultural Business and Management [AGT 216(1-3)]
3 sch	Supervised Agricultural Experience [AGT 211(1-6)]
3 sch	Vegetable Production (AGR 1333)
3 sch	Water Quality Management (CFT 1143)

† Students who are computer literate may substitute Introduction to Computers (CPT 1114) or another acceptable computer course.

SECTION I:

BASELINE COMPETENCIES

BASELINE COMPETENCIES FOR AGRICULTURAL BUSINESS AND MANAGEMENT TECHNOLOGY CLUSTER

The following competencies and suggested objectives are taken from the publication *Mississippi Curriculum Framework for Secondary Agricultural Business and Management*. These competencies and objectives represent the baseline which was used to develop the community/junior college Agricultural Business and Management Technology Cluster courses. Students in postsecondary courses should either (1) have documented mastery of these competencies, or (2) be provided with these competencies before studying the advanced competencies in the Agricultural Business and Management Technology Cluster programs.

Baseline competencies may be integrated into existing courses in the curriculum or taught as special "Introduction" courses. The "Introduction" courses may be taught for up to six semester hours of institutional credit and may be divided into two courses. If the Baseline Competencies are to be taught as "Introduction" courses, each course should be at least 3 credit hours. The following course number(s) and description should be used:

Course Name(s): Introduction to Agricultural Business and Management Technology, Introduction to Agricultural Business and Management Technology I, or Introduction to Agricultural Business and Management Technology II

Course Abbreviation(s): AGT 100(3-6), AGT 1013, AGT 1023

Classification: Vocational-Technical Core

Description: These courses contain the baseline competencies and suggested objectives from the high school Agricultural Business and Management curriculum which directly relate to the community college Agricultural Business and Management Technology program. The courses are designed for students entering the community college who have had no previous training or documented experience in the field. (3-6 semester hours based upon existing skills for each student. May be divided into 2 courses for a maximum total of 6 hours of institutional credit.)

Competencies and Suggested Objectives:

1. Describe vocational student organization activities that relate to and support the instructional program.
   a. Identify vocational student organization activities supporting the instructional program.
   b. Determine what procedures are needed to participate in vocational student organization activities.

Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5
Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6

2. Compile information on careers in Agricultural Business and Management.
   a. Identify career opportunities in Agricultural Business and Management.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5
   Workplace Skills (See Appendix B): WP1, WP2, WP6
3. Apply leadership skills needed in the Agricultural Business and Management field.
   a. Demonstrate leadership skills in speaking.
   b. Demonstrate leadership skills in conducting a meeting using "Roberts Rules of Order."

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
4. Apply computer skills.
   a. Demonstrate the use of word processing.
   b. Demonstrate the use of spreadsheets.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M2, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
5. Develop mathematical skills.
   a. Demonstrate mathematical concepts involved in adding, subtracting, multiplying, and dividing fractions and whole numbers.
   b. Demonstrate mathematical concepts in measuring.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C6, M1, M2, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP7
6. Apply record keeping skills.
   a. Demonstrate record keeping skills involved in selecting, planning, and implementing a Supervised Agricultural Experience Program (SAE).
   b. Assist students to utilize record keeping procedures throughout the course.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M2, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
7. Apply proper safety procedures with tools, equipment, and hazardous materials.
   a. Identify proper safety procedures with tools, equipment, and hazardous materials.
   b. Demonstrate proper safety procedures with tools, equipment, and hazardous materials.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4
   Workplace Skills (See Appendix B): WP1, WP2, WP3
8. Select and utilize proper equipment for a specific job.
   a. Identify equipment for a specific job.
   b. Demonstrate correct procedures for use of selected hand and power tools.

Related Academic Topics (See Appendix A): C1, C2, C3, C4
Workplace Skills (See Appendix B): WP1, WP2, WP3

9. Develop a bill of materials for a specific job.
   a. Identify the components of a bill of materials.
   b. Prepare a bill of materials.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
10. Apply procedures for maintaining and storing equipment.
   a. Perform procedures for maintaining equipment.
   b. Perform procedures for storing equipment.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4
   Workplace Skills (See Appendix B): WP1, WP2, WP3
11. Select proper animal for specific farm enterprise.
   a. Identify types of animals for use in beef, dairy, swine, poultry, sheep, horses, and aquaculture enterprises.
   b. Describe characteristics of breeds of livestock used in beef, dairy, swine, poultry, sheep, horses, and aquaculture enterprises.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4,C5, S3, S7, S8
   Workplace Skills (See Appendix B): WP2, WP4, WP6
12. Develop knowledge of nutrition in livestock production.
   a. Identify terms related to animal nutrition.
   b. Identify sources of nutrient groups and their functions.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
13. Apply management practices for maintaining animal health.
   a. Determine management practices for maintaining animal health.
   b. Determine causes and treatment of disease and parasites.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
14. Explain livestock reproduction.
   a. Define terms associated with livestock reproduction.
   b. Compare the differences in estrus cycles and gestation periods of livestock.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M3, M8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
15. Categorize the classes of agricultural plants.
   a. Classify plants by life cycle.
   b. Identify parts of plants.
   c. Describe functions of plant parts.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
16. Determine plant nutrients needed for proper growth.
   a. Identify the primary and secondary plant nutrients.

b. Determine amounts and kinds of fertilizer needed for proper plant growth.
Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S8
Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

17. Describe common groups of plant pests and diseases and methods of control.
    a. Identify common groups of plant pests.
    b. Identify common groups of plant diseases.
    c. Determine methods of plant pest control.
    d. Determine methods of plant disease control.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, S2, S8
    Workplace Skills (See Appendix B): WP1, WP2, WP5, WP6
18. Describe the factors which affect soil formation.
    a. Identify factors which affect soil formation including climate, weather, slope, and drainage.
    b. Classify soil condition by sand, silt, and clay particles.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, S4, S8
    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
19. Contrast types of soil erosion and control.
    a. Identify the types of soil erosion and their control.
    b. Identify factors that determine land capability class as related to erosion.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, S4, S8
    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
20. Describe point sources of pollution.
    a. Identify procedures for protecting the water table.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, S4, S8
    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
21. Describe the different types of business organizations, their advantages, and their disadvantages.
    a. Identify the different types of business organizations including sole proprietorship, partnership, corporate, and cooperative.
    b. Compare the advantages and disadvantages of business organizations.
    Related Academic Topics (See Appendix A): C1, C2, C4, C5
    Workplace Skills (See Appendix B): WP1, WP4, WP6
22. Analyze principles of a partnership agreement.
    a. Explain the principles of a partnership agreement.
    b. Describe a local business partnership.
    Related Academic Topics (See Appendix A): C1, C2, C4, C5
    Workplace Skills (See Appendix B): WP1, WP4, WP6
23. Differentiate between retail and wholesale marketing.
    a. Identify retail and wholesale marketing.
    b. Identify retail and wholesale outlets in the community.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M6, M7
    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6

24. Identify factors that affect pricing.
    a. Describe the law of supply and demand.
    b. Describe how income, population, customer preferences, competition, and expectations affect pricing.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M6, M7

    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6
25. Utilize an Agricultural Satellite Information System (ASIS).
    a. Identify terms and abbreviations associated with ASIS.
    b. Retrieve commodity trading prices, specific news items, and government reports.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M4, M6, M7

    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6
26. Describe the use, advantages, and disadvantages of agricultural credit.
    a. Identify the uses of agricultural credit.
    b. Identify the advantages and disadvantages of agricultural credit.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5

    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
27. Determine established guidelines for credit rating and credit agreements.
    a. Identify the guidelines for credit ratings.
    b. Identify the various credit agreements and their guidelines.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5

    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
28. Describe credit agencies and their sources of credit.
    a. Identify local credit agencies and their operational procedures.
    b. Identify alternative sources of farm credit.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5

    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
29. Explain budgeting and determine reasons for budgeting.
    a. Define budgeting.
    b. Determine significant reasons for budgeting.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M2, M7

    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
30. Develop an enterprise budget.
    a. Identify the parts of a budget.
    b. Develop a budget.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M2, M7

    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
31. Develop a strategy for using the ASIS in budgeting.
    a. Identify the information available and needed for budgeting on the ASIS.
    b. Retrieve information needed to develop an agricultural budget.

Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M2, M7
Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

32. Examine the outlook for employment in the agribusiness and management field.
    a. Identify local agribusinesses.
    b. Identify employment opportunities.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
33. Apply leadership skills needed in the agribusiness and management field.
    a. Describe the leadership skills required in the agribusiness and management field including public speaking and parliamentary procedures.
    b. Demonstrate the leadership skills needed in the agribusiness and management field.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
34. Describe the importance of human relations skills.
    a. Identify positive personality traits.
    b. Demonstrate positive personality traits.
    c. Utilize human relation skills throughout the course.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
35. Distinguish between an agribusiness employee's success and failure as a result of human relations skills.
    a. Identify skills and personality traits which determine success and failure.
    b. Demonstrate personality traits which determine success and failure.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
36. Analyze components of the skills of listening and answering questions.
    a. Describe the components of listening and answering questions.
    b. Demonstrate skills in listening and answering questions.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
37. Apply acceptable procedures for answering business telephones and taking messages in an agribusiness setting.
    a. Identify acceptable procedures for answering business telephones and taking messages.
    b. Demonstrate acceptable procedures for answering business telephones and taking messages.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
38. Apply the proper elements in developing a business letter.
    a. Identify the proper elements in developing a business letter.
    b. Write a business letter.

Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5
Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6

39. Prepare a resume and an employment application form.
    a. Describe the components of a resume and an employment application form.
    b. Prepare a resume and an application form using a word processor.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
40. Prepare and present a 3-5 minute presentation related to an agribusiness topic.
    a. Describe the parts of a speech.
    b. Develop a speech outline and prepare a 3-5 minute presentation related to an agribusiness topic.
    c. Present a 3-5 minute presentation related to an agribusiness topic.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP5, WP6
41. Apply different approaches to the potential customer.
    a. Describe various approaches to the potential customer.
    b. Demonstrate various approaches to the potential customer.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
42. Demonstrate a sales presentation of agribusiness supplies and/or products.
    a. Describe the steps to give a sales presentation of agribusiness supplies and/or products.
    b. Give a sales presentation of agribusiness supplies and/or products.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
43. Practice procedures for overcoming customer resistance.
    a. Determine ways to overcome customer resistance.
    b. Demonstrate procedures for overcoming customer resistance.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
44. Apply procedures for closing a sale.
    a. Explain the procedures to close a sale.
    b. Demonstrate procedures for closing a sale.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
45. Apply procedures for making customer transactions.
    a. Identify different business procedures which are used in customer transactions.
    b. Demonstrate procedures for making customer transactions.
    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C6, M1, M7
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6

46. Describe how inventory is managed and how the selling price of merchandise is determined.
    a. Describe how inventory is managed and how the selling price of merchandise is determined including physical replacement, labor, freight charges, wholesale costs, overhead, and loss/waste.
    b. Prepare an inventory by using a computer spreadsheet.

    Related Academic Topics (See Appendix A): C1, C2, C5, M1, M7
    Workplace Skills (See Appendix B): WP1, WP2, WP4
47. Utilize business machines.
    a. Describe the function of business machines in agribusiness.
    b. Demonstrate use of business machines including calculators, cash registers, and computers.

    Related Academic Topics (See Appendix A): C1, C2, C5, M1, M7
    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
48. Explain methods of agricultural promotions.
    a. Describe methods of promotions as related to agriculture including advertisements, displays, radio, ASIS, and television.
    b. Identify agricultural promotions being used in advertisements, displays, radio, and television in the community.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C6
    Workplace Skills (See Appendix B): WP2, WP3, WP3, WP4, WP6
49. Explain how advertising is used in agribusiness.
    a. Describe how advertising is used in agribusiness including source of information, to persuade, and to remind.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
50. Explain types of advertising media used by agribusiness including newspapers, television, display, magazines, and flyers.
    a. Describe types of advertising media used by agribusiness including newspapers, television, display, magazines, and flyers.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
51. Design and prepare an agribusiness display and advertisement.
    a. Describe the components in designing and preparing an agribusiness advertisement.
    b. Design and prepare an agribusiness display and advertisement.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
52. Prepare tax forms.
    a. Describe the forms and elements of preparation for income tax forms.
    b. Complete tax returns.

    Related Academic Topics (See Appendix A): C1, C2, C4, C6, M1, M7
    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

53. Explain the responsibilities of the agribusiness employer concerning social security.
    a. Describe types of social security benefits.
    b. Identify responsibilities of the agribusiness employer concerning social security.

    Related Academic Topics (See Appendix A): C1, C2, C5, M1, M7
    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
54. Explain the kinds of insurance with coverage needed in an individual operation.
    a. Compare the common kinds of insurance and coverages including life, property, health, and liability.
    b. Determine the insurance needs of an individual operator including life, property, health, and liability.

    Related Academic Topics (See Appendix A): C1, C2, C5, M1, M7
    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
55. Explain the essential elements of a contract and associate laws and other regulations affecting agribusiness activities.
    a. Identify the essential elements of a contract including offer and acceptance, consideration, legal parties, and unlawful practices.
    b. Associate laws and regulations affecting agribusiness activities including negligence, workman's compensation, estate planning, and other regulations.

    Related Academic Topics (See Appendix A): C1, C2, C5, M1, M7
    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
56. Explain general uses of futures contracts in marketing agricultural products, crops, and livestock.
    a. Describe the function of a futures contract.
    b. Describe the function of a futures contract option.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M7
    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6
57. Apply ASIS in explaining how futures contract prices related to cash market prices.
    a. Define the relationship between cash and futures prices (basis).
    b. Track the price fluctuations for a particular commodity through a six-week period, futures prices vs. cash prices.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M1, M7
    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6
58. Apply proper safety procedures.
    a. Describe proper safety procedures with hand tools, power tools, and equipment.
    b. Demonstrate proper safety procedures with hand tools, power tools, and equipment.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, M1, M7
    Workplace Skills (See Appendix B): WP1, WP2, WP5, WP6

59. Apply procedures of welding with electric arc and oxyacetylene welding equipment.
    a. Identify and/or construct various welds using electric arc welding equipment.
    b. Identify and/or construct various welds using oxyacetylene welding equipment.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, M1, M7
    Workplace Skills (See Appendix B): WP1, WP2, WP5, WP6
60. Apply procedures to service and troubleshoot small gasoline engines.
    a. Describe procedures to service and troubleshoot a small gasoline engine.
    b. Demonstrate procedures to service and troubleshoot small gasoline engines.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, M1, M7
    Workplace Skills (See Appendix B): WP1, WP2, WP5, WP6
61. Apply procedures to make electrical repairs.
    a. Describe procedures to make electrical repairs.
    b. Demonstrate procedures to make electrical repairs.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, M1, M7
    Workplace Skills (See Appendix B): WP1, WP2, WP5, WP6
62. Apply procedures to make plumbing repairs.
    a. Describe the procedures to make plumbing repairs.
    b. Demonstrate the procedures to make plumbing repairs.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, M1, M7
    Workplace Skills (See Appendix B): WP1, WP2, WP5, WP6
63. Apply procedures to make structural repairs.
    a. Describe the procedures to make structural repairs.
    b. Demonstrate the procedures to make structural repairs.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, M1, M7
    Workplace Skills (See Appendix B): WP1, WP2, WP5, WP6
64. Explain the approaches to acquiring property.
    a. Identify the approaches to acquiring property including inheritance, purchasing, and leasing.
    b. Describe the approaches to acquiring property including inheritance, purchasing, and leasing.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
65. Explain the factors to consider in lease agreements.
    a. Identify the factors to consider in lease agreements.
    b. Describe the factors to consider in lease agreements including crop-share and cash lease.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6
    Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
66. Explain the system used in establishing the legal description of land.
    a. Describe the system used to establish the legal description of land.

b. Interpret the legal description of a tract of land including section, township, and range.

Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6
Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6

67. Utilize concepts of land surveying.
    a. Identify the principles of land surveying.
    b. Demonstrate land surveying by running lines according to a land description.

Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6
Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6

SECTION II:

CURRICULUM GUIDE

FOR

AGRICULTURAL BUSINESS AND MANAGEMENT TECHNOLOGY CLUSTER

AGRICULTURAL BUSINESS AND MANAGEMENT COURSES

Course Name: Agricultural Records

Course Abbreviation: AGT 1613

Classification: Vocational-Technical Core (All areas of concentration)

Description: An introduction to agricultural record keeping techniques including single entry accounting methods, field and enterprise records, credit purchases, and sinking funds. (3 sch: 2 hr. lecture, 2 hr. lab) (Option Project Based 3 sch: 1 hr. lecture, 4 hr. lab) (Principles of Accounting, ACC 1213 may be substituted.)

Prerequisites: None

Competencies and Suggested Objectives:

1. Describe the components of agriculture records.
   a. Compare financial to production records.
   b. Identify the different components of financial records.
   c. Identify the types of production records.
   d. Discuss the major uses of record types.
   Related Academic Topics (See Appendix A): C1, C2, C3, C6, M1, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
2. Describe capital accounts and their financial components.
   a. Develop depreciation work sheets for the major types of depreciation.
   b. Develop a depreciation schedule combining several different types of depreciation and depreciable items.
   Related Academic Topics (See Appendix A): C1, C2, M1, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
3. Describe the different types of credit.
   a. Identify the different types of farm loans.
   b. Calculate a loan amortization factor for the purchase of a major item of machinery.
   c. Develop a repayment schedule for a major equipment purchase.
   d. Develop records used to manage accounts payable for short term credit accounts using a single entry format.
   e. Develop a sinking fund for generating a future sum.
   Related Academic Topics (See Appendix A): C1, C2, M1, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
4. Develop components for production records.
   a. Develop data collection components for land and/or enterprise records.
   Related Academic Topics (See Appendix A): C1, C2, C5, M1, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

Course Name: Agricultural Sales

Course Abbreviation: AGT 2213

Classification: AOC Core (Agricultural Business Management), AOC Elective (Animal Husbandry and Field Crops)

Description: A course in the advertising, sales, and promotion of agricultural supplies and services. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Analyze consumer needs and services.
   a. Describe the concept of marketing as applied to the sales of agricultural supplies.
   b. Analyze marketing strategies and systems.
   c. Identify problems in market development.
   d. Discuss the importance of developing a market share.
   Related Academic Topics (See Appendix A): C1, C2, C5, C6, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
2. Describe techniques for selling.
   a. Design a sales display.
   b. Develop an advertising scheme for an agricultural product.
   c. Develop a plan for using follow-up as a sales tool.
   d. Describe how credit is used as a sales tool.
   Related Academic Topics (See Appendix A): C1, C2, C5, C6, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
3. Describe sales from the customer's view point.
   a. Identify characteristics of a salesperson.
   b. Describe the difference between customer needs and wants.
   c. Prepare a survey for establishing a market for an agricultural product.
   Related Academic Topics (See Appendix A): C1, C2, C5, C6, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6

Course Name: Applied Agricultural Economics

Course Abbreviation: AGT 2263

Classification: AOC Core (Agricultural Business Management and Field Crops), AOC Elective (Animal Husbandry)

Description: A course to introduce the student to economic principles as applied to agribusiness operations. (3 sch: 2 hr. lecture, 2 hr. lab) (Note: Principles of Agricultural Economics (AGR 2713) or Principles of Economics (ECO 2113) may be substituted for this course.)

Prerequisites: None

Competencies and Suggested Objectives:

1. Describe agribusiness relationship to the domestic and foreign economies.
   a. Identify agribusiness structures.
   b. Describe methods for organizing agribusiness.
   c. Name the causes for seasonal output.
   d. Show how graphs and charts are used to display and present economic facts and concepts.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M1, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
2. Discuss demand theory and how a demand curve is developed.
   a. Identify how the consumer relays information concerning wants and needs to the suppliers of goods and services.
   b. Develop and label the demand curve.
   c. Show the relationship between the slope of the demand curve and the concept of elasticity of demand.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M1, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
3. Discuss the economic facts associated with single variable inputs.
   a. Identify the profit motive and how it affects the use of variable inputs in crop production.
   b. Identify the derived demand for an input.
   c. Describe and apply the concept of marginalism to use of variable inputs.
   d. State the law of diminishing returns and the relationship to use of single variable inputs.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M1, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6

4. Define the relationship between cost and length of run when used in planning and decision making.
   a. Identify the different cost concepts used to describe the production of agricultural products.
   b. Describe the factors which affect farm size.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M1, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
5. Analyze government influence on the production and price of farm commodities.
   a. Define equilibrium price.
   b. Analyze public policy in production system.
   c. Discuss the influence of government regulations and foreign policy on stability and profitability of agricultural systems.
   d. Identify the causes of surplus and shortage and the role government programs play.
   e. Define the benefactor of all government subsidies and payments.
   f. Identify relationships between government agencies and the cost of producing food and fiber.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M1, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6

Course Name: Applied Principles of Animal Production

Course Abbreviation: GT 1214

Classification: Vocational-Technical Core (All areas of concentration)

Description: A course to provide students with basic principles related to the production of farm animals. Includes instruction in the basic production cycle, breeding, nutrition, and health of beef and dairy cattle, hogs, poultry, and commercial fish. (4 sch: 3 hr. lecture, 2 hr. lab) (Note: Animal Science (AGR 1214) may be substituted for this course.)

Prerequisites: None

Competencies and Suggested Objectives:

1. Describe the types of production cycle of livestock.
   a. Identify and contrast the different sectors of beef cattle production.
   b. Identify and contrast the different sectors of dairy cattle production.
   c. Identify and contrast the different sectors of poultry production.
   d. Identify and contrast the different sectors of swine production.
   e. Identify and contrast the different sectors of sheep production.
   f. Identify and contrast the different sectors of horse production.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M6, M7, S7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
2. Describe and contrast the characteristics of different breeds of livestock.
   a. Contrast the characteristics, qualities, and origins of beef cattle breeds.
   b. Contrast the characteristics, qualities, and origins of dairy cattle breeds.
   c. Contrast the characteristics, qualities, and origins of poultry breeds.
   d. Contrast the characteristics, qualities, and origins of swine breeds.
   e. Contrast the characteristics, qualities, and origins of sheep breeds.
   f. Contrast the characteristics, qualities, and origins of horse breeds.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M6, M7, S7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
3. Describe the reproductive processes of livestock.
   a. Compare the different systems of breeding animals.
   b. Contrast the different systems of breeding poultry.
   c. Describe factors that can be used for selection of individual animals in a breeding program.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M6, M7, S7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
4. Describe nutritive needs of livestock.
   a. Describe the characteristics of the classes of nutrients, namely, fats, protein, water, carbohydrates, minerals, and vitamins.

b. Contrast differences in the digestive systems of cattle, poultry, swine, sheep, and horses.

Related Academic Topics (See Appendix A): C1, C2, C4, C5, M6, M7, S5, S8

Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

5. Describe the importance of a livestock herd health program.
   a. Identify signs and symptoms of animals infected with internal and external parasites.
   b. Identify common diseases associated with the different species of livestock.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M6, M7, S2, S5, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

Course Name: Applied Principles of Plant Production

Course Abbreviation: AGT 1313

Classification: Vocational-Technical Core (All areas of concentration)

Description: A course to provide information related to the growth, nutrition, and general culture of agricultural and horticultural crops. Includes instruction on photosynthesis and transpiration, plant nutrition, pest control, and reproduction. (3 sch: 2 hr. lecture, 2 hr. lab) (Note: Plant Science (AGR 1313) or Botany (BIO 1313) may be substituted for this course.)

Prerequisites: None

Competencies and Suggested Objectives:

1. Describe the interrelationship of the major parts of a plant and how they have adapted to the environment.
   a. Describe the interrelationship of plant roots, stems, and leaves and how they have adapted to the environment.

   Related Academic Topics (See Appendix A): C1, C4, C5, S2, S3, S7, S8

   Workplace Skills (See Appendix B): WP2, WP4, WP6, WP8
2. Identify the components of a typical plant cell and describe their function(s).
   a. Identify the structure and function of each plant cell organelle.
   b. Describe the different tissue systems of plants.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, S2, S3, S5, S7, S8

   Workplace Skills (See Appendix B): WP2, WP4, WP6, WP8
3. Describe the chemical composition of plants.
   a. Contrast and compare carbohydrates, proteins, and fats found in plants.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, S2, S3, S5, S7, S8

   Workplace Skills (See Appendix B): WP2, WP4, WP6, WP8
4. Describe the processes and interrelationship of photosynthesis and respiration in green plants.
   a. Explain the effects of temperature, light, water, and air on green plants.
   b. Discuss the translocation of water from the roots to the leaves.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, S2, S3, S5, S7, S8

   Workplace Skills (See Appendix B): WP2, WP4, WP6, WP8
5. Describe the methods of weed, insect, and plant disease control.
   a. Describe different methods of pest control, namely, chemical, mechanical, cultural, and biological.
   b. Identify the different types of plant pests.

c. Describe the damage caused by agricultural crop pests.

Related Academic Topics (See Appendix A): C1, C2, C4, C5, S2, S3, S5, S7, S8

Workplace Skills (See Appendix B): WP2, WP4, WP6, WP8

6. Describe the genetics of plant breeding.
   a. Describe the advantages and disadvantages of sexual and asexual reproduction.
   b. Describe the creation of new varieties through plant breeding (hybrids).

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, S2, S3, S5, S7, S8

   Workplace Skills (See Appendix B): WP2, WP4, WP6, WP8
7. Explain the nutritional requirements for plants.
   a. Describe the functions micro and macro nutrients in plants.
   b. Compare the advantages and disadvantages of chemical and organic fertilizers.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, S2, S3, S5, S7, S8

   Workplace Skills (See Appendix B): WP2, WP4, WP6, WP8

Course Name: Applied Soils-Conservation and Use

Course Abbreviation: AGT 1714

Classification: Vocational-Technical Core (All areas of concentration)

Description: A course to introduce the student to the general principles of soil conservation and safe use. Includes instruction in the soil formation process, properties of soils, soil texture, and soil management for optimum safe use. (4 sch: 3 hr. lecture, 2 hr. lab) (Note: Basic Soils (AGR 2314) may be substituted for this course.)

Prerequisites: None

Competencies and Suggested Objectives:

1. Describe the soil formation process.
   a. Describe the chemical and biological properties of soils.
   b. Discuss the different types of erosion.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M1, M4, M7, S4, S5, S8
   Workplace Skills (See Appendix B): WP2, WP4, WP6, WP8
2. Describe the different physical properties of soils.
   a. Define the term soil texture and relate texture to productivity and management.
   b. Classify soils as to general textural class.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M1, M4, M7, S4, S5, S8
   Workplace Skills (See Appendix B): WP2, WP4, WP6, WP8
3. Develop soil management strategies for sustaining soil productivity.
   a. Define and contrast the terms fertility and productivity as applied to a soil.
   b. Describe the effects of tillage and traffic as related to soil structure and productivity.
   c. Describe how soil pH affects plant growth and state methods which can be used to raise or lower pH.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M1, M4, M7, S4, S5, S8
   Workplace Skills (See Appendix B): WP2, WP4, WP6, WP8
4. Use a transit level to design and calculate the cost of structures designed to protect and develop soil productive capacity.
   a. Design a pond levee and calculate the cost of construction.

b. Design a terrace system and calculate the cost of this system.

Related Academic Topics (See Appendix A): C1, C2, C4, C5, M1, M4, M5, M7, S4, S5, S8

Workplace Skills (See Appendix B): WP2, WP4, WP6, WP8

Course Name: Human Relations in Agribusiness

Course Abbreviation: AGT 2313

Classification: AOC Core (Agricultural Business Management), AOC Elective (Animal Husbandry and Field Crops)

Description: A course to study human relations as related to agricultural occupations. Includes instruction on topics such as morale, burnout, stress, work habits, and communications. (3 sch: 2 hr. lecture, 2 hr. lab) (Note: Professional Development (BOT 1213) may be substituted for this course.)

Prerequisites: None

Competencies and Suggested Objectives:

1. Define human relations.
   a. Associate the meaning of work, motivation, and productivity.
   b. Assess the impact of job satisfaction on morale.
   c. Associate creativity with decision making.
   d. Examine the effects of job stress on burnout.
   Related Academic Topics (See Appendix A): C1, C3, C4, C5, C6
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
2. Develop communications skills.
   a. Analyze the impact of job conflict on worker productivity.
   b. Demonstrate employee counseling and coaching.
   c. Analyze getting along in a bureaucracy.
   Related Academic Topics (See Appendix A): C1, C3, C4, C5, C6
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
3. Explain the importance of utilizing proper personnel management in the agribusiness workplace.
   a. Contrast work habits and time management.
   b. Develop a personnel management work plan for an established agribusiness.
   Related Academic Topics (See Appendix A): C1, C3, C4, C5, C6
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
4. Plan and organize career development plans.
   a. Develop career development plans.
   b. Organize career development plans.
   Related Academic Topics (See Appendix A): C1, C3, C4, C5, C6
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6

Course Name: Principles of Agricultural Management

Course Abbreviation: AGT 1413

Classification: AOC Core (Agricultural Business and Management and Animal Husbandry), AOC Elective (Field Crops)

Description: A course which provides instruction in organization and structure of agricultural businesses, decision-making, and the planning process for farming operations. (3 sch: 2 hr. lecture, 2 hr. lab) (Option Project Based 3 sch: 1 hr. lecture, 4 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Explain the role and function of management in an agricultural production system.
   a. Describe management skills needed to operate an agriculture-related business.
   b. Describe the decision-making process.
   c. Discuss the characteristics of problems and decisions made in agriculture.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
2. Construct budgets used in decision making for agricultural enterprises and farms.
   a. Identify and define the cost components of a enterprise and partial budgets.
   b. Develop enterprise and partial budgets.
   c. Identify the various sources of income and how they fit into an organized budget.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
3. Perform whole farm planning and budgeting.
   a. Develop inventory formats for various agricultural resources.
   b. Develop a resource use plan identifying the difference between long term and short term planning.
   c. Incorporate tax management strategies into developing production plans.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
4. Apply classical formats used as tests for the financial health of a business.
   a. Develop and analyze a income statement.
   b. Develop and analyze a balance sheet.
   c. Utilize the various test ratios for a particular balance sheet and income statement.

Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, C6, M7
Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6

Course Name: Principles of Agricultural Marketing

Course Abbreviation: AGT 1513

Classification: Vocational-Technical Core (All areas of concentration)

Description: An introduction to general principles of marketing agricultural products. Includes instruction in general marketing practices and the use of futures contracts. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Describe how a marketing systems develops.
   a. Define marketing as it refers to agricultural commodities.
   b. Discuss the development of organized marketing.
   c. Identify the technical components of marketing.
   d. Discuss the role of information in marketing including modern satellite and computer systems.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, C6, M1, M6, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
2. Identify the factors which affect basic commodity prices.
   a. Describe price determination as it relates to the forces of supply and demand.
   b. Discuss the difference between farm and consumer prices.
   c. Discuss the fallacy of composition and the dangers associated with rapid response to price changes with production.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, C6, M1, M6, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
3. Use hedging with a particular agricultural commodity.
   a. Discuss the use of futures contracts in organized marketing.
   b. Define delivery and delivery date of a futures contract.
   c. Calculate the basis for a particular commodity.
   d. Develop a theoretical hedge.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, C6, M1, M6, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
4. Use commodity options to set price floors with futures contracts.
   a. Define commodity options and their use in a marketing plan.

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b. Discuss the relationship between option cost and strike price.

Related Academic Topics (See Appendix A): C1, C2, C4, C5, C6, M1, M6, M7

Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6

5. Develop a marketing plan.
   a. Develop an estimated production plan.
   b. Develop a marketing plan for production of a particular commodity.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, C6, M1, M6, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6

Course Name: Special Problem in Agricultural Business and Management

Course Abbreviation: AGT 216(1-3)

Classification: Vocational-Technical Elective (All areas of concentration)

Description: A course to provide students with an opportunity to utilize skills and knowledge gained in other Agricultural Business and Management courses. The instructor and student work closely together to select a topic and establish criteria for completion of the project. (1-3 sch: 2-6 hr. lab)

Prerequisites: Sophomore standing in Agricultural Business and Management Technology

Competencies and Suggested Objectives:

1. Prepare a written agreement.
   a. Compile a written training agreement in cooperation with the instructor and student which details work schedule and specific tasks/skills to be mastered in the program.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
2. Prepare a written report of activities.
   a. Compile a daily log of activities and tasks.
   b. Submit weekly reports to the instructor summarizing activities and tasks completed.
   c. Submit a final report of activities and experiences.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, C6, M1, M6, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
3. Follow written guidelines for work experience programs.
   a. Complete all required activities in the training agreement.
   b. Adhere to all written and oral instructions for the supervised experience.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, C6, M1, M6, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6

Course Name: Supervised Agricultural Experience

Course Abbreviation: AGT 211(1-6)

Classification: AOC Core (Agricultural Business Management), AOC Elective (Field Crops and Animal Husbandry)

Description: This internship course provides actual work experience in an agriculture business under the direction of the employer and the instructor. (1-6 sch: 3-18 hr. externship)

Prerequisites: Sophomore standing in Agricultural Business and Management Technology

Competencies and Suggested Objectives:

1. Prepare a training agreement.
   a. Compile a written training agreement in cooperation with the instructor and employer which details work schedule and wages, and specific tasks/skills to be mastered in the program.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
2. Prepare and submit written reports of the supervised experience.
   a. Compile a daily log of activities and tasks.
   b. Submit weekly reports to the instructor summarizing activities and tasks completed.
   c. Submit a final report of activities and experiences.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, C6, M1, M6, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
3. Follow written guidelines for work experience programs.
   a. Complete all required activities in the training agreement.
   b. Adhere to all written and oral instructions for the supervised experience.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, C6, M1, M6, M7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP5, WP6

Course Name: Survey of Agricultural Technology I, II, III, IV

Course Abbreviation: AGT 1111, AGT 1121, AGT 1131, AGT 1141

Classification: Vocational-Technical Core (All areas of concentration)

Description: A course to provide opportunities for students to gain knowledge, practice, and study in agricultural technology. Includes lectures and seminars on current agricultural topics including government programs and policies, current technological trends and practices, international agriculture, agricultural leadership and employment opportunities, etc. (1 sch: 1 hr. lecture; may be repeated for a maximum of 4 sch)

Prerequisites: None

Competencies and Suggested Objectives:

1. Development of leadership and employability skills.
   a. Prepare a job resume.
   b. Prepare a letter of application.
   c. Indicate the effectiveness of good personal traits in the area of employment.
   d. Participate in Postsecondary Agricultural Students Organization (PAS) or local club activities.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6
2. Identify the major agriculture industries and their relationships to the agricultural community.
   a. Compare the agriculture sector to the general economy.
   b. Describe the scope and economic importance of the agribusiness sector.
   c. Identify the foundations of agribusiness.
   d. Describe public and private service organizations.
   e. Compile a listing of the agriculture related industries in the local area.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP6

ANIMAL HUSBANDRY COURSES

Course Name: Animal Reproduction

Course Abbreviation: AGT 1913

Classification: AOC Core (Animal Husbandry)

Description: Provides information and laboratory opportunities to assist students in learning about animal reproduction. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: Applied Principles of Animal Production (AGT 1214)

Competencies and Suggested Objectives:

1. Differentiate between phenotype and genotype.
   a. Explain how environment effects phenotype.
   b. Describe the effect of genetics on phenotype.
   c. Explain how genotype is derived.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, C6, M1, M2, M6, M7, S7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
2. Explain the male reproductive tract.
   a. Draw and label the male reproductive tract.
   b. Describe the function of the accessory sex glands.
   c. Describe how malformation affects reproduction.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M6, M7, S1, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
3. Explain the function of sperm.
   a. Draw and label the parts of sperm.
   b. Describe the types of sperm abnormalities.
   c. Describe the tests normally performed on sperm.
   d. Describe the properties of a good semen diluter.
   e. Identify the causes of sperm death.
   f. Describe how environmental factors effect reproduction.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M6, M7, S1, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
4. Explain the female reproductive tract.
   a. Draw and label the female reproductive tract.
   b. Describe the functions of the ovary.
   c. Describe the relationship of the pituitary gland and the ovary.

d. Identify the causes of reproductive failure.

Related Academic Topics (See Appendix A): C1, C2, C4, C5, M6, M7, S1, S5, S8

Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

5. Explain the estrus cycle.
   a. Describe the methods of genetic manipulation.
   b. Describe genetic sex determination.
   c. Classify the types of sex abnormalities.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M6, M7, S1, S5, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
6. Perform reproductive management techniques.
   a. Demonstrate the ability to pass a catheter through the cervix.
   b. Perform pregnancy testing.
   c. Cite methods of heat synchronization.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, C6, M6, M7, S1, S5, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

Course Name: Applied Animal Nutrition

Course Abbreviation: AGT 2663

Classification: AOC Core (Animal Husbandry), AOC Elective (Agricultural Business Management)

Description: A comprehensive course of study on the practical principles and applications of nutrition. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: Applied Principles of Animal Production (AGT 1214)

Competencies and Suggested Objectives:

1. Identify the classes of nutrients including protein, fat, carbohydrates, vitamins, minerals, and water.
   a. Describe the sources and major functions of water on the animal.
   b. Describe the general structure, functions, and classification of carbohydrates.
   c. Cite the general classification and functions of fat.
   d. Explain the amino acid make-up of protein and contrast essential and non-essential amino acids.
   e. Identify and contrast macro minerals and micro minerals.
   f. Identify and contrast water soluble and fat soluble vitamins.

   Related Academic Topics (See Appendix A): C1; C2, C4, C5, M7, S1, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP5, WP6
2. Identify and contrast the differences in the digestive systems of the different species of farm animals.
   a. Identify, in order of passage, the digestive organs of a monogastric animal.
   b. Contrast the difference between the monogastric and ruminant stomach.
   c. Explain the concept of horses utilizing forage.
   d. Describe the digestion and absorption process in monogastric and ruminant animals.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S1, S5, S8
   Workplace Skills (See Appendix B): WP1 WP2, WP5, WP6
3. Explain the process by which feedstuffs are analyzed.
   a. Describe the processes to calculate the nutritive ratio and apparent digestibility.
   b. Construct the energy scheme.
   c. Compare the advantages and disadvantages of the proximate analysis, bomb calorimeter, and Van Soest Fiber Determination.

d. Compare the advantages and disadvantages of feeding trials, digestion trials, and balance trials.

Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S1, S5, S8
Workplace Skills (See Appendix B): WP1, WP2, WP5, WP6

4. Formulate rations for all classes of farm animals.
   a. Formulate a ration for CP or energy using the Pearson Square.
   b. Formulate a ration using the Double Pearson Square.
   c. Formulate a least-cost ration using a computer.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S1, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP5, WP6
5. Identify the various sources of feed stuffs for livestock.
   a. Identify and distinguish between different categories of feedstuffs used as sources of roughage, protein, and energy.
   b. Describe the uses of mineral and vitamin additives in livestock rations.
   c. Describe the use of non-nutritive additives in feedstuffs.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S1, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP5, WP6

Course Name: Beef Production I

Course Abbreviation: AGT 2713

Classification: AOC Core (Animal Husbandry), AOC Elective (Agricultural Business Management and Field Crops)

Description: A course to provide knowledge and practice in the area of beef production. Includes instruction in animal breeding and nutrition and livestock handling practices. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: Applied Principles of Animal Production (AGT 1214)

Competencies and Suggested Objectives:

1. Classify the common breeds by ease of management.
   a. Describe size of breeds in relationship to ease of management.
   b. Describe climate in relation to different breeds.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
2. Describe the genetics and breeding of beef cattle.
   a. Name the principles of animal breeding.
   b. Describe the systems of beef cattle breeding.
   c. Identify the fundamentals of heredity in beef cattle.
   d. Define selection response.
   e. Compare the benefits of purebreeding versus crossbreeding.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M6, M7, S7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
3. Explain the importance of sire selection and cow selection.
   a. Name the criteria for selecting artificial insemination (AI) sires.
   b. Specify criteria for selecting replacement heifers.
   c. Compile a list of factors to consider in selecting the productive female.
   d. Describe the circumstances normally used in culling cows.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M6, M7, S7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
4. Compare fall calving versus spring calving.
   a. Describe the different market avenues for spring and fall calves.
   b. Compare the costs of producing fall and spring calves.
   c. Compare requirements for cows producing fall and spring cows.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M6, M7, S7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

5. Examine factors that influence herd size.
   a. Describe land requirements.
   b. Describe investments in animals.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
6. Demonstrate beef cattle management skills.
   a. Perform dehorning of cattle.
   b. Perform castration of cattle.
   c. Perform ear tagging of cattle.
   d. Perform hoof trimming of cattle.
   e. Perform tattooing of cattle.
   f. Perform branding of cattle.
   g. Perform weighing of cattle.
   h. Perform worming of cattle.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M6, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
7. Explain beef cattle nutrition.
   a. Identify the major feeds for beef cattle.
   b. Describe nutrient requirements as related to the season.
   c. Develop a pre-conditioning program for calves.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

Course Name: Beef Production II

Course Abbreviation: AGT 2723

Classification: AOC Core (Animal Husbandry), AOC Elective (Agricultural Business Management and Field Crops)

Description: A continuation of Beef Production I with emphasis on management, herd health, and marketing. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: Beef Production I (AGT 2713)

Competencies and Suggested Objectives:

1. Explain how the cost of beef production can be reduced by improving efficiency.
   a. Demonstrate a method of adjusting weaning weights.
   b. Demonstrate how crossbreeding improves efficiency.
   c. Describe how pasture improvement reduces production costs.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
2. Manage beef cattle health.
   a. Identify the major diseases that affect beef cattle.
   b. Cite causes, prevention, and treatment of diseases in cattle.
   c. Describe symptoms of specific diseases in beef cattle.
   d. Design a program of beef cattle health, disease prevention, and parasite control.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
3. Discuss beef cattle production.
   a. Identify reproductive failures associated with nutrition.
   b. Describe the affect of fever on reproduction.
   c. Explain the use of hormones to improve reproduction.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
4. Describe facilities required for beef cattle.
   a. Explain the use of natural weather breaks.
   b. Design a cattle handling and working facility.
   c. Design a feed storage facility.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
5. Explain methods for marketing cattle.
   a. Compare cattle as to grade.
   b. Compare direct packer sales to auction sales.

c. Describe the use of satellite marketing.
d. Discuss how management practices can be adjusted to fit a particular market.

Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S8
Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

6. Design a feed lot.
   a. Discuss location of feed mill to pens.
   b. Describe the rations used for feed lot cattle.
   c. Contrast breeds as to feed lot efficiency.
   d. Explain the types of feeding contracts.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

Course Name: Fish Management

Course Abbreviation: AGT 2513

Classification: Vocational-Technical Elective (All areas of concentration)

Description: Practical principles and application techniques in the production, harvesting, and marketing of fish. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: Applied Principles of Animal Production (AGT 1214)

Competencies and Suggested Objectives:

1. Analyze the trends of commercial fish farming.
   a. Interpret supply and demand for commercial fish products.
   b. Determine species preference and product to be produced.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M6, M8, S3, S4, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6
2. Determine pond requirements.
   a. Calculate size of ponds.
   b. Determine site selection of ponds.
   c. Estimate construction costs of a specific size pond.
   d. Determine type of drainage needed for ponds.
   e. Determine availability of water.
   f. Identify types of water pumps and their application.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M6, M8, S3, S4, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6
3. Determine stocking rates.
   a. Determine water volume.
   b. Calculate stocking rate based upon age of fish and volume of water.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M6, M8, S3, S4, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6
4. Analyze feeding plan.
   a. Determine feeding requirements.
   b. Determine feed conversion ratio and least cost of feeding.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M6, M8, S3, S4, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6
5. Determine water quality.
   a. Sample water and analyze water quality.
   b. Determine time and methods to take oxygen measurements.

c. Prescribe corrective steps to be taken to improve water quality.
d. Maintain water quality.

Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M6, M8, S3, S4, S5, S8

Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6

6. Manage fish health.
   a. Perform field dissection to determine the health of the fish.
   b. Identify and treat fish diseases.
   c. Identify and treat fish parasites.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M6, M8, S3, S4, S5, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6
7. Control fish predation.
   a. Identify bird predation and controls.
   b. Identify animal predation and controls.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M6, M8, S3, S4, S5, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6
8. Determine factors involved in harvesting and marketing fish.
   a. Establish a market.
   b. Determine time to harvest according to size and market demand.
   c. Determine handling, seining, and hauling requirements.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M6, M8, S3, S4, S5, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6
9. Describe other systems of aquaculture than catfish production.
   a. Describe tank culture systems.
   b. Describe production of alternate species.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M6, M8, S3, S4, S5, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6
10. Describe controls for off-flavor.
    a. Sample fish for off-flavor.
    b. Identify causes of off-flavor.
    c. Recommend prevention and treatment of off-flavor.

    Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M6, M8, S3, S4, S5, S8

    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP5, WP6

Course Name: Fitting/Grooming/Judging

Course Abbreviation: AGT 1813

Classification: AOC Elective (Agricultural Business Management and Animal Husbandry)

Description: Provides information and practice on fitting, grooming, and judging agricultural products. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Examine and operate equipment used in fitting and grooming livestock.
   a. Make a rope halter.
   b. Select an animal for show.
   c. Break the selected animal to lead at halter.
   d. Clip the selected animal.
   e. Wash the selected animal.
   f. Groom the selected animal.
   g. Prepare the selected animal for show.
   h. Show the selected animal.
   Related Academic Topics (See Appendix A): C1, C2, C3, S1
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4
2. Explain the importance of livestock production.
   a. Identify the trends in livestock selection since World War II.
   b. Describe the future trends in livestock selection within the next ten years.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
3. Explain the evaluation process of beef cattle.
   a. Identify the parts of beef cattle.
   b. Describe the general and specific terms utilized in judging breeding beef and market beef cattle.
   c. Write and orally deliver reasons for placement of beef cattle, using proper terminology and organization of reasons.
   d. Describe the importance of utilizing expected progeny difference (EPD) in beef cattle evaluation.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, C6, M6, M7, S1, S7
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6

4. Explain the evaluation process of swine.
   a. Identify the parts of swine.
   b. Describe the general and specific terms utilized in judging breeding and market swine.
   c. Write and orally deliver reasons for the placement of swine, using proper terminology and organization of reasons.
   d. Describe the importance of utilizing performance data in swine evaluation.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, C6, M6, M7, S1, S7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
5. Explain the evaluation process of sheep.
   a. Identify the parts of sheep.
   b. Describe the general and specific terms utilized in judging breeding and market sheep.
   c. Write and orally deliver reasons for the placement of sheep, using proper terminology and organization of reasons.
   d. Describe the importance of utilizing performance data in sheep evaluation.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, C6, M6, M7, S1, S7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
6. Explain the evaluation process of horses.
   a. Identify the parts of horses.
   b. Describe the general and specific terms utilized in judging horses.
   c. Write and orally deliver reasons for the placement of horses, using proper terminology and organization of reasons.
   d. Describe the importance of utilizing performance data in horse evaluation.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, C6, M6, M7, S1, S7

   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6

Course Name: Horse Production

Course Abbreviation: AGT 2863

Classification: AOC Core (Animal Husbandry)

Description: A comprehensive course in the production and management of horses. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: Applied Principles of Animal Production (AGT 1214)

Competencies and Suggested Objectives:

1. Explain the history and development of the horse industry.
   a. Describe the role of the horse in the development of the nation.
   b. Describe the decline of the horse.
   c. Determine uses of the horse today.
   Related Academic Topics (See Appendix A): C1, C2, C5
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
2. Assess the functional anatomy of the horse.
   a. Describe the skeletal system in relationship to unsoundness.
   b. Determine age in horses by teeth.
   c. Draw and describe head markings.
   d. Describe the different gaits of the horse.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S1
   Workplace Skills (See Appendix B): WP2, WP4, WP6
3. Quote the difference in types of horse breeding programs.
   a. Compare linebreeding and closebreeding as types of inbreeding.
   b. Describe how different breeds are bred for particular functions.
   c. Compare the characteristics of different breeds.
   d. Determine the facilities needed for a breeding station.
   e. Compare management and heredity as to development.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M6, M7, S1, S7
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
4. Develop a horse nutrition program.
   a. Compare differences between horse feeds and cattle feeds.
   b. Evaluate different hays according to suitability for horses.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
5. Develop a horse health program.
   a. Identify routine vaccinations.
   b. Describe causes, prevention, and treatment of diseases.
   c. Prepare a parasite control program.
   d. Collect feces samples and examine for parasites.

e. Describe how nutrition, parasitism, heredity, and man contribute to diseases of horses.
f. Identify factors that affect the way the body copes with disease.

Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S1, S2
Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6

6. Examine market avenues for horses.
   a. Compare production sales with auction sales.
   b. Describe factors that cause horses to increase/decrease in value.
   c. Describe the role of the meat industry in relation to the horse.

Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7
Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6

Course Name: Principles of Meats Processing I

Course Abbreviation: AGT 2913

Classification: AOC Elective (Animal Husbandry)

Description: An introduction to meat processing focusing on principles of meat processing and slaughter of animals for consumption. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Describe the structure and composition of meat.
   a. Determine maturity of meat by color of lean, fat, and bone.
   b. Describe how colors are associated with storage time.
   c. Outline the tenderization process caused by aging of meat.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S1, S2
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
2. Describe how the present trend in diet has affected our eating habits.
   a. Discuss medical findings in relation to meats.
   b. Discuss fat content of beef and pork.
   c. Discuss marbling and its effect on quality and fat content.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
3. Outline pork slaughter and processing.
   a. Describe the process of slaughtering swine.
   b. Compare styles of dressing pork and their yields.
   c. Identify and process the wholesale cuts of pork.
   d. Describe the difference in ante-mortem and post-mortem inspection.
   e. Calculate pork prices based on live merit buying.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
4. Outline beef slaughtering and processing.
   a. Describe the process of slaughtering beef cattle.
   b. Classify hides and skins by weight and grade.
   c. Calculate weight loss due to shipping.
   d. Outline waste disposal control practices.
   e. Break beef carcasses into wholesale cuts of beef.
   f. Describe the uses of packing plant byproducts.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6

5. Discuss storage of meat.
   a. Discuss shelf life of various products and factors which influence the same.
   b. Examine the effect of temperature on storage time.
   c. Examine the effect of quick chill on tenderness.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6

Course Name: Principles of Meats Processing II

Course Abbreviation: AGT 2923

Classification: AOC Elective (Animal Husbandry)

Description: A continuation of Principles of Meats Processing I with emphasis on inspection and sanitation and retail processing procedures. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: Principles of Meats Processing I (AGT 2913)

Competencies and Suggested Objectives:

1. Demonstrate the safe use of meat cutting equipment.
   a. Explain the use of shields on saws.
   b. Outline the use of electrical equipment in a wet environment.
   c. Show students the electrical cut-off.
   d. Develop a sanitation program for a processing plant.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
2. Explain the use of meats as food.
   a. Describe the nutritive value of meat as compared to its economic value.
   b. Distinguish between processed meat and restructured meat.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
3. Explain the federal and state meat inspection programs.
   a. Describe exemptions to meat laws.
   b. Describe the use of glands in inspection.
   c. Identify products which may be added to meat.
   d. Describe the use of antioxidants in meat products.
   e. Describe the process for the disposal of the offal.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
4. Compare the USDA inspection Service and the USDA Grading Service.
   a. Describe the function of the USDA acceptance service.
   b. Discuss the Institutional Meat Provisioners Standards.
   c. Describe grades and grading factors for beef, pork, lamb, calf, veal, poultry, and fish.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
   Demonstrate the breakdown of wholesale beef cuts.
   a. Make retail cuts from the beef round.
   b. Make retail cuts from the beef chuck.

c. Make retail cuts from the beef rib.
d. Make retail cuts from the beef loin.
e. Differentiate between ground beef and hamburger.

Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S2, S8
Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6

6. Outline the breakdown of small species carcasses.
   a. Describe the differences between wholesale and retail cuts of pork.
   b. Make retail cuts from a pork carcass.
   c. Make retail cuts from poultry.
   d. Make retail cuts from fish.
   e. Make retail cuts from lamb.
   f. Critique the use of lard as a food.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6
7. Explain quality control factors.
   a. Describe the control of added water and added fats.
   b. Name factors affecting microbiological growth.
   c. Calculate curing and smoking times for pork products, fish, and poultry.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP3, WP4, WP6

Course Name: Swine Production

Course Abbreviation: AGT 2813

Classification: AOC Elective (Animal Husbandry and Agricultural Business Management)

Description: A comprehensive course in the production and management of swine. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: Applied Principles of Animal Production (AGT 1214)

Competencies and Suggested Objectives:

1. Compare swine production to other agriculture production systems.
   a. Identify the factors favorable and unfavorable to swine production.
   b. Formulate factors to consider in establishing a herd.
   c. Compare different types of buildings and quarters.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M6, M7, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
2. Choose methods of selection for herd improvement.
   a. Compare genetic principles as related to heredity.
   b. Describe different systems of breeding.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M6, M7, S7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
3. Discuss swine nutrition.
   a. Specify how pastures, roughages, and silages can be used in a swine feeding program.
   b. Specify the nutrient requirements for swine in different stages of production.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
4. Cite causes prevention and cure of diseases in swine.
   a. Describe methods used in vaccinating swine.
   b. Name diseases common in swine.
   c. Define factors that affect the way the body copes with pathogens.
   d. Differentiate between the way viruses and bacteria work in causing diseases.
   e. Identify first line defense systems against invasion of pathogens.
   f. Compare types of immunity.
   g. Classify the basic types of immunizing agents.
   h. Describe the relationship of colostrum to anti-body production of newborn.
   i. Describe how nutrition, parasitism, heredity, and man contribute to diseases in animals.

Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S2, S8
Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

5. Discuss the major breeds of swine in the U.S.
   a. Identify the color patterns of different breeds of livestock.
   b. Identify difference in size, growth rate, muscle, backfat, and libido in the different breeds of swine.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S1, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
6. Explain swine reproduction.
   a. Identify the major organs in the reproductive tract of the boar and sow.
   b. Discuss the reproductive cycle of a sow.
   c. Discuss the reproductive life of the boar and sow.
   d. Discuss the significance of artificial insemination in swine.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S1, S2, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

FIELD CROPS COURSES

Course Name: Agricultural Machinery and Shop Management

Course Abbreviation: AGT 2563

Classification: AOC Core (Field Crops), AOC Elective (Agricultural Business Management)

Description: A comprehensive course studying operation and management of farm power machinery and shop repairs and maintenance. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Identify safety procedures with all tools and equipment.
   a. Pass a general shop safety test.
   b. Pass a tractor and farm equipment safety test.
   c. Design a farm shop.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M7, S6, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
2. Measure machine capacity.
   a. Determine capacity measuring methods.
   b. Select the optimum machine operating speed.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M7, S6, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
3. Determine how to improve field efficiency of machines.
   a. Calculate machine performance rate.
   b. Assess the value of preventive maintenance.
   c. Assess the impact of technological obsolescence.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M7, S6, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
4. Calculate the economic alternatives of acquiring farm machinery.
   a. Select tractors and equipment based on farm size.
   b. Understand how to allow for expansion.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M7, S6, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
5. Demonstrate the skills needed to perform structural repair to farm machinery.
   a. Demonstrate the proper procedures for use of a cutting torch.
   b. Demonstrate the ability to perform basic gas welding.

c. Demonstrate the ability to perform basic arc welding.

Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M7, S6, S8

Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

6. Demonstrate the ability to perform minor mechanical maintenance on farm machinery.
   a. Perform ordinary maintenance and service of machinery.
   b. Demonstrate the ability to perform troubleshooting for power equipment using technical manuals, parts manuals, and service guides.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M7, S6, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

Course Name: Agricultural Structures

Course Abbreviation: AGT 2113

Classification: AOC Elective (Agricultural Business Management and Field Crops)

Description: This course is a study of new technology for designing and maintaining facilities for use in agribusiness/agriculture applications. (3 sch: 1 hr. lecture, 4 hr. lab)

Prerequisites: Baseline competencies

Competencies and Suggested Objectives:

1. Demonstrate the importance of buildings associated with agricultural production.
   a. Determine importance in the area of human living.
   b. Determine the importance of farm buildings in the area of production and financial efficiency.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M7, S6, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
2. Describe the costs associated with agricultural buildings.
   a. Calculate initial costs of a building or structure.
   b. Estimate maintenance and repair costs of a building.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M4, M7, S6, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
3. Explain the purpose and design of crop processing and storage facilities.
   a. Describe the theory behind design of processing facilities.
   b. Describe the importance of monitoring storage environments to avoid decrease in quality and grade of stored crops.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M3, M4, M7, S6, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
4. Explain the importance of insulation and heat flow in agricultural buildings.
   a. Calculate the thermal resistance of a wall using a table of values.
   b. Calculate the rate of heat flow through a wall utilizing a formula and appropriate data.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M3, M4, M7, S6, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

5. Demonstrate the importance of ventilation in agricultural structures.
   a. Calculate the amount of air required to remove a specific amount of moisture from within structures.
   b. Calculate the heat required to dry an amount of rice to the processor's specifications.
   c. Calculate the amount of ventilation required for a given number of animals.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M3, M4, M7, S6, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
6. Apply the general theory behind using basic electricity on the farm.
   a. Demonstrate basic wiring capabilities in a simulated laboratory setting.
   b. Identify tools, equipment, and safety factors used in basic wiring of agricultural structures.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M3, M4, M7, S6, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
7. Design a modern farm shop.
   a. Determine specifications and dimensions for a modern farm shop.
   b. Calculate total costs for construction of a design project.

   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M3, M4, M7, S6, S8

   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

Course Name: Crop Production (Cotton and Rice)

Course Abbreviation: AGT 2373

Classification: AOC Core (Field Crops)

Description: This course is a study of crop production techniques including tillage and planting, pest control, and physical marketing practices for cotton and rice. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: Applied Principles of Plant Production (AGT 1313)

Competencies and Suggested Objectives:

1. Develop and determine knowledgeable skills concerning crop production.
   a. Describe where crops are grown by geographical areas.
   b. Describe the importance of the study of crop production.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
2. Identify natural resource/crop relationships.
   a. Define the role that soil types play in crop selection and production.
   b. Examine the different types of water management practices.
   c. Determine the fertility levels for alternative crop enterprises.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
3. Classify the different types of environmental problems experienced in crop production in Mississippi.
   a. Identify weeds and alternative control measures.
   b. Identify insects and alternative control measures available.
   c. Identify plant diseases and factors affecting diseases for crops grown in Mississippi.
   d. Discuss government regulation concerning the use of environment altering production practices.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
4. Identify tillage systems and production practices used for crop production in Mississippi.
   a. Identify conventional tillage systems.
   b. Identify conservation tillage systems.
   c. Identify no-till tillage systems.
   d. Compare all alternative tillage systems as to their profitability and sustainability in production characteristics.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

5. Apply the principles of plant mapping to production of cotton.
   a. Describe plant mapping.
   b. Explain how plant mapping can have an effect upon crop yields.
   c. Collect data and manipulate the variables on plant mapping in cotton.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M6, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
6. Explain the inputs for use of Gossym Comax in cotton production.
   a. Describe the procedures for utilizing Gossym Comax.
   b. Measure the heat index.
   c. Observe cotton growth stages.
   d. Apply principles of climatic environment to cotton growth.
   e. Apply principles of insect growth factors using Gossym Comax.
   f. Calculate fertilizer input using Gossym Comax.
   g. Calculate irrigation requirements using Gossym Comax.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M6, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
7. Explain the principles of using chemical growth regulators and their use in controlling cotton growth.
   a. Identify sources of plant growth regulation.
   b. Apply plant growth regulators to growing crops.
   Related Academic Topics (See Appendix A): C1, C2, C3, C4, C5, M7, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

Course Name: Crop Production (General)

Course Abbreviation: AGT 2363

Classification: AOC Core (Field Crops), AOC Elective (Agricultural Business Management and Animal Husbandry)

Description: This course is a study of crop production techniques including tillage and planting, pest control, and physical marketing practices for crops in Mississippi. Included are major field crops found in the local community college districts (excluding cotton and rice. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: Applied Principles of Plant Production (AGT 1313)

Competencies and Suggested Objectives:

1. Develop knowledgeable skills concerning crop production.
   a. Describe where crops are grown by geographical areas.
   b. Describe the importance of the study of crop production.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S4, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
2. Identify natural resource/crop relationships.
   a. Define the role that soil types play in crop selection and production.
   b. Examine the different types of water management practices.
   c. Determine the fertility levels for alternative crop enterprises.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S4, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
3. Classify the different types of environmental problems experienced in crop production in Mississippi.
   a. Identify weeds and alternative control measures.
   b. Identify insects and alternative control measures available.
   c. Identify plant diseases and factors affecting diseases for crops grown in Mississippi.
   d. Discuss government regulation concerning the use of environment altering production practices.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S4, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
4. Identify tillage systems and production practices used for crop production in Mississippi.
   a. Identify conventional tillage systems.
   b. Identify conservation tillage systems.
   c. Identify no-till tillage systems.

d. Compare all alternative tillage systems as to their profitability and sustainability in production characteristics.

Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S4, S5, S8
Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

5. Identify methods for maintaining soil productivity in Mississippi.
   a. Determine levels of macro nutrients essential for crop production.
   b. Determine the levels of micro nutrients essential for crop production.
   c. Identify the sources of supplementary nutrients.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S4, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
6. Examine water management practices.
   a. Describe irrigation practices.
   b. Describe drainage factors.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S4, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
7. Identify machinery needs for crop production.
   a. List practices necessary for seedbed preparation including disking, harrowing, and hipping.
   b. Identify the equipment needed for seedbed preparation.
   c. Contrast the equipment needs for conventional and conservation production systems.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S4, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
8. Identify the environmental factors which affect crop production in Mississippi.
   a. Describe how temperature, cloud cover, and humidity affects growing season.
   b. Describe how different levels of rainfall affect the growing seasons and crop production practices.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S4, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

Course Name: Forage and Pasture Crops

Course Abbreviation: AGT 2613

Classification: AOC Elective (Agricultural Business Management and Animal Husbandry)

Description: A comprehensive course in the production and management of forage and pasture crops. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: Applied Principles of Plant Production (AGT 1313)

Competencies and Suggested Objectives:

1. Describe the uses of forages.
   a. Explain how forages are used for watershed management.
   b. Identify the role of forages to livestock in the national economy.
   c. Define grassland agriculture.
   d. Identify problems faced by world population in relation to forages.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S4, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
2. Compare the composition and nutritive value of forages.
   a. Name the stages of growth for grasses and legumes and their relationships to nutritive value.
   b. Describe the formation of nodules by legumes.
   c. Compare hay to silage as an animal feed.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S4, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
3. Examine the effects that farm management practices have on forage.
   a. Examine the effects of grazing pressure on new plant seedlings.
   b. Describe the relationship between plants, animals, and soils.
   c. Describe harvest and storage methods of forage crops.
   d. Determine the best practices for producing, harvesting, and storing high quality hay.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S4, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
4. Identify common forages found in the south.
   a. Classify grasses that are warm season perennials.
   b. Identify cool season grasses.
   c. Explain growth stages of legumes.

d. Design a mixed grass and legume system for pastures.
e. Calculate fertilizer requirements of grasses and legumes on existing soil test.

Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S4, S5, S8
Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

Course Name: Insects and Controls

Course Abbreviation: AGT 2463

Classification: AOC Core (Field Crops)

Description: A course to provide instruction and training in techniques of control of insect pests. Includes instruction in the safe and proper use of chemical and other control methods. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: Applied Principles of Plant Production (AGT 1313)

Competencies and Suggested Objectives:

1. Identify insects associated with field crops.
   a. Describe early season insects.
   b. Describe late season insects.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S3, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
2. Identify types of insect damage incurred in field crops.
   a. Describe damage to leaves.
   b. Describe damage to stems.
   c. Describe damage to roots.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S3, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
3. Explain the life cycle of various insects.
   a. Describe the complete life cycle.
   b. Describe the incomplete life cycle.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S3, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
4. Identify different insecticide/pesticide categories.
   a. Describe contact chemicals and how they work.
   b. Describe residuals and how they work.
   c. Describe systemics and how they work.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S3, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
5. Identify different classes and formulations of insecticides and how each affects insects.
   a. Describe inorganic insecticides.
   b. Describe organic insecticides.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S3, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

6. Describe precautions to be followed to protect people, animals, and crops when applying insecticides.
   a. Determine Environmental Protection Agency regulations pertaining to insecticide application.
   b. Determine ways in which pesticides enter the body.
   c. Identify safety equipment and supplies involved with insecticide application.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S3, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
7. Interpret information on an insecticide container label.
   a. Identify signal words.
   b. Describe formulations of insecticides.
   c. Identify crops labeled for a particular insecticide.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S3, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
8. Explain the relationship between how and when to apply insecticides.
   a. Determine when herbicides should be applied.
   b. Identify equipment and methods used in insecticide application.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S3, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
9. Compare aerial versus ground applications.
   a. Contrast advantages and disadvantages of aerial and ground applications.
   b. Calibrate ground application equipment.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S3, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
10. Identify alternative methods of insect control.
    a. Describe biological insect control.
    b. Describe cultural insect control.
    Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S3, S5, S8
    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
11. Identify insect damage levels.
    a. Evaluate economic thresholds.
    b. Evaluate zero damage level.
    c. Evaluate equilibrium status.
    Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S3, S5, S8
    Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

Course Name: Weed Control

Course Abbreviation: AGT 2413

Classification: AOC Core (Field Crops)

Description: A course to provide students with information and skills for controlling plant pests in agricultural crops. Includes instruction in the use and application of chemicals for weed control. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: Applied Principles of Plant Production (AGT 1313)

Competencies and Suggested Objectives:

1. Define and identify weeds.
   a. Define terms associated with weeds.
   b. Identify weeds according to the growing season.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S2, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
2. Explain ways in which weeds harm agricultural crops.
   a. Describe how weeds can reduce crop yields.
   b. Describe how weeds can lower human efficiency.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S2, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
3. Describe the different types, classes, and formulations of herbicides and how each affects crops and weeds.
   a. Describe inorganic herbicides.
   b. Describe organic herbicides.
   c. Identify different ways that herbicides are formulated.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S2, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
4. Explain precautions to be followed to avoid injury to people, animals, and crops when applying herbicides.
   a. Determine environmental protection agency regulations pertaining to pesticide application.
   b. Determine ways in which pesticides enter the body.
   c. Describe selectivity in herbicides.
   d. Identify safety equipment associated with herbicide application.
   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S2, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
5. Interpret information on an herbicide container label.
   a. Determine signal words.

b. Determine formulations.
c. Determine crops labeled for an herbicide.

Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S2, S5, S8
Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

6. Determine how and when to apply herbicides.
   a. Establish time periods in which herbicides should be applied for maximum effectiveness.
   b. Determine equipment and methods used to apply herbicides.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M7, S2, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
7. Calculate drifts and determine amounts of herbicides to be applied.
   a. Calculate drift.
   b. Explain the reasoning behind applying herbicides in certain quantities to avoid weed resistance and crop damage.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M4, M7, S2, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
8. Calibrate an herbicide applicator to deliver the prescribed amount of an herbicide to a given area.
   a. Identify equipment needed for calibration.
   b. Calculate the calibration from data supplied.

   Related Academic Topics (See Appendix A): C1, C2, C4, C5, M4, M7, S2, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
9. Meet requirements for a private applicator's license.
   a. Describe procedures to acquire a private applicator's license.
   b. Qualify and apply for a private applicator's license.

   Related Academic Topics (See Appendix A): C1, C2, C , C5, M4, M7, S2, S5, S8
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

RELATED VOCATIONAL-TECHNICAL COURSES

Course Name: Applied Business Mathematics

Course Abbreviation: BOT 1313

Classification: AOC Core (Fields Crops), AOC Elective (Agricultural Business and Management) (From Business and Office and Related Technology)

Description: This course is designed to develop competency in mathematics for business use. Ten-key touch method on the electronic desktop calculators is stressed. (3 sch: 3 hr. lecture)

Prerequisites: None

Competencies and Suggested Objectives:

1. Operate a calculator using the touch method.
   a. Build speed and accuracy in data entry.
   b. Proofread and edit numbers.
   Related Academic Topics (See Appendix A): C1, C2, C3, C6, M1, M2
   Workplace Skills (See Appendix B): WP2, WP6
2. Solve mathematical problems.
   a. Analyze the problem.
   b. Round numbers and estimate a solution to the problem.
   c. Perform mathematical computations.
   d. Compare estimated solution with computed solution.
   Related Academic Topics (See Appendix A): C1, C2, C3, M1, M2, M7
   Workplace Skills (See Appendix B): WP2, WP3, WP4, WP6
3. Apply math skills to business transactions, reports, and documents.
   a. Complete and verify various business forms including calculating discounts on invoices.
   b. Compute and compare interest and finance charges.
   c. Calculate percent of increase/decrease.
   d. Complete depreciation schedules.
   e. Complete payroll and taxes.
   f. Compute commission, markup, and selling price.
   g. Use deductive reasoning to solve problems and generate conclusions.
   Related Academic Topics (See Appendix A): C1, C2, C3, C6, M1, M2, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6
4. Apply math skills to personal finances.
   a. Reconcile a bank statement.
   b. Compute personal taxes.
   c. Compute insurance costs.
   Related Academic Topics (See Appendix A): C1, C2, C3, C6, M1, M2, M7
   Workplace Skills (See Appendix B): WP1, WP2, WP4, WP6

Course Name: Introduction to Computers

Course Abbreviation: CPT 1114

Classification: Vocational-Technical Core (All areas of concentration) (From Business and Office and Related Technology)

Description: Introduction to information processing concepts and applications including operating systems, word processing, electronic spreadsheets, data management, graphics, and BASIC programming. Service course; not to be taken by Business and Office and Related Technology students. (4 sch: 2 hr. lecture, 4 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Identify the advantages and disadvantages of the computer to individuals and businesses.
2. Identify the roles of and equipment used for input, processing, and output in an information system.
3. Identify common disk operating system procedures and file maintenance problems.
4. Identify terms associated with concepts in information processing.
5. Identify skills associated with information processing.
6. Identify correct safety procedures.
7. Develop keyboarding skills to produce mailable documents.
8. Demonstrate the ability to use a dictionary, word book, and a reference manual, thesaurus, and grammar verification software.
9. Prepare letters using full block and modified block letter styles and prepare envelopes according to U.S. Postal regulations.
10. Create and print mailable document to include:
    a. page format.
        i. tabs
        ii. margins and page length
        iii. line spacing
    b. input text.
        i. insert text
        ii. replace text
        iii. delete text
        iv. center
        v. underline
    c. edit document.
        i. insert/delete a blank line

ii. find and replace
iii. block editing
(1) copy
(2) move
(3) delete

d. spell check document.
e. save document.
f. print document.
i. print selected text
ii. print entire document
g. get an existing file.

11. Complete a files management project on the microcomputer, to include:
a. design a file
b. add forms to the file
c. edit selected forms
d. delete selected forms
e. generate reports
f. print labels
12. Design and print a database report.
13. Design and print mailing labels on the microcomputer.
14. Use a spreadsheet program to prepare an appropriate template and insert given data for a personal, a business, and an education application to include the following features:
a. column headings
b. row headings
c. delete headings
d. set cell styles
e. type values in cells
f. create formulas
g. recalculate
h. print
15. Merge a database application and a spreadsheet application with a word processing document.
16. Generate and print graphs from given data.
17. Use available software to input personal, business, and organizational names in proper indexing order and produce an alphabetical list.
18. Write and run a simple program using BASIC statements to include CLS, New, REM, Print, Let, Input, Data, Read, If Then, Go To.
19. Back up and restore files.
20. State the goals of documentation.
21. Describe flow charting concepts.
22. Use directories and sub-directories.
23. Describe the importance of careful formatting.

Course Name: Maintenance of Tractors, Machinery, and Equipment

Course Abbreviation: AMT 1414

Classification: AOC Core (Animal Husbandry) (From Agricultural Mechanics Technology)

Description: Included are procedures for performing routine maintenance services on agricultural tractors, machinery, and equipment; welding with electric arc, wire feed, and oxyacetylene welding equipment; and cutting metals with oxyacetylene and plasma are cutting equipment. (4 sch: 2 hr. lecture, 4 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Perform braze welds with welding torch.
2. Perform soldering on radiators with welding torch.
3. Perform braze welds on split and worn hydraulic lines.
4. List and perform four types of weld joints, including butt, lap, corner, and bevel welds using arc welding equipment, wire feed equipment, and oxyacetylene welding equipment.
5. Cut metals to be welded using plasma arc torch.
6. Perform hard-surfacing on wear points using arc welding processes.
7. Describe the functions and test the performance of a carburetor.
8. Describe the functions and test the performance of a governor.
9. Remove and reinstall a radiator.
10. Drain and flush a cooling system; use cooling fluid correctly.
11. Check turbocharger for leaks.
12. Remove and replace a detective turbocharger.
13. Check turbocharger impeller and turbine for defects and carbon build-up.
14. Replace and bleed faulty injection line.
15. Replace and/or repair fuel transfer and hand fuel pump.
16. Replace fuel filter.
17. Drain sediment and water from fuel tank.

Course Name: Water Quality Management

Course Abbreviation: (CFT 1143)

Classification: AOC Elective (Field Crops) (From Catfish Production Technology)

Description: This course is a practical water quality management study. Included are analyses of important water quality parameters, their significance, manipulation, and effect on catfish production. Students will perform an ongoing laboratory exercise applying skills previously learned. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives:

1. Explain the importance of maintaining water quality.
2. Identify the water quality parameters to be measured and state their importance:
   a. Dissolved oxygen.
   b. Chloride.
   c. Ammonia.
   d. Nitrite.
   e. Alkalinity.
3. Explain the meaning of water quality readings, terms, and the appropriate response to readings obtained.
4. Describe dissolved oxygen and its importance in catfish culture:
   a. Define dissolved oxygen (D.O.).
   b. Describe the importance of maintaining adequate levels of D.O.
5. Explain fluctuations of D.O. during daytime and nighttime.
6. Explain how to recognize problems caused by low D.O.
7. Demonstrate how to determine the oxygen content of the water using a YSI dissolved oxygen meter.
8. Demonstrate how to calibrate and maintain a YSI D.O. meter:
   a. Calibrate a YSI D.O. meter.
   b. Demonstrate how to change membranes.
   c. Demonstrate when to change membranes.
   d. Describe procedures for storage of probe.
   e. Demonstrate handling of the meter.
9. Demonstrate the operation and maintenance of the Hach Water Quality Test Kit.
10. Determine the chloride, ammonia, nitrite, and alkalinity content of a water sample using the Hach Water Quality Test Kit.
11. Determine the D.O. content of the college ponds on a regular scheduled basis, including nighttime monitoring when appropriate.

12. Perform appropriate actions to correct any unacceptable water quality conditions.
13. Determine the chloride, ammonia, nitrite, and alkalinity content of the college ponds.
14. Keep records of all readings in a neat orderly fashion and submit formal water quality reports.
15. Determine the effect of water temperature on oxygen capacity.

RELATED ACADEMIC COURSES

Course Name: Business Mathematics

Course Abbreviation: BAD 1313

Classification: Related Academic

Description: Emphasis is placed on the study of the fundamental processes, fractions, decimals, percentage, and problem solving. The application of these fundamental processes is applied toward the problems of business which the student will encounter in the various commercial fields.

Course Name: Business Law

Course Abbreviation: BAD 2413

Classification: Related Academic

Description: This course is designed to acquaint the student with the fundamental principles of law as they relate to the basic legal problems of business transactions in our economy. Special attention will be given to an introduction to law; law of contracts; agencies and employment; negotiable instruments and commercial papers.

Course Name: General Chemistry Survey (Basic)

Course Abbreviation: CHE 1114

Classification: Related Academic

Description: A study of the physical properties of chemicals, their fundamental properties, laws and theories.

Course Name: Introduction to Computer Concepts

Course Abbreviation: CSC 1113

Classification: Related Academic

Description: A basic course that advances concepts, terminology, and theory of modern computers. It is a survey course. It is not for business, computer science, or engineering students.

Course Name: Poultry Production

Course Abbreviation: AGR 2613

Classification: Related Academic

Description: General problems of poultry production, breed selection, management, breeding, feeding, culling, broiler production, egg production, marketing, disease, and sanitary practices.

Course Name: Principles of Chemistry I

Course Abbreviation: CHE 1314

Classification: Related Academic

Description: Emphasis on properties of matter and application of principles. Primarily for students in pre-nursing, home economics, agriculture, and physical education.

Course Name: Vegetable Production

Course Abbreviation: AGR 1333

Classification: Related Academic

Description: This course presents the principles and practices in the commercial production of vegetable crops. It will include the information relating to kinds, varieties, seeding rates, dates, and practices.

SECTION III:

RECOMMENDED TOOLS AND EQUIPMENT

RECOMMENDED TOOLS AND EQUIPMENT FOR POSTSECONDARY AGRICULTURAL BUSINESS AND MANAGEMENT TECHNOLOGY

(Quantities for a class up to 15 students)

General Equipment for Agricultural Business and Management Technology Cluster

1. Blow dryer (1)
2. Chute, blocking (1)
3. Clippers, large animal (1)
4. Computer w/SVGA monitor, and access to CD-ROM and telecommunications (16)
5. Computer, notebook (1)
6. Microscope, dissecting w/lights (8)
7. Microscope, w/lights (8)
8. Oven, soil drying
9. pH tester (2)
10. Plant mobil (1)
11. Printer, bubblejet w/cables and switches (8)
12. Remote weather station (temperature, barometric pressure, and rainfall) (1)
13. Root view (1)
14. Seed germination oven (1)
15. Soil compaction tester (1)
16. Soil moisture tester (Tensiometer) (1)
17. Soil sample probe (4)
18. Table, soils lab (2)
19. Table, printer (8)
20. Tank, artificial insemination (1)
21. Transit level w/Philadelphia rods (3)
22. Workstation, computer w/hutches (16)

Additional Tools and Equipment for Animal Husbandry Concentration

1. Chute, cattle squeeze (1)*
2. Disk (1)*
3. Electric fence charger (1)
4. Electro-ejaculator (1)
5. Feed grinder/mixer (1)*
6. Grain drill (1)
7. Harrow (1)*
8. Hay roller (1)*
9. Hay rake (1)*
10. Hay cutter, disc (1)*
11. Pasture clipper (1)*

12. Scales, livestock (1)*
13. Sprayer, pasture w/tank (1)
14. Stock trailer (1)*
15. Tractor (1)*
16. Truck, 3/4 - 1 ton (1)*

* Used equipment is acceptable provided it is available and in satisfactory condition.

Additional Tools and Equipment for Field Crops Concentration

1. Air compressor (1)*
2. Anvil (1)*
3. Applicator, herbicide (rope wick) (1)
4. Arbor press (1)*
5. Arc welder (2)
6. Bandsaw, metal curring (1)*
7. Bin, grain storage (small scale w/loading & unloading capacity) (2)
8. Blade, box (1)*
9. Blade, grader (1)*
10. Chain hoist (1)*
11. Chisel plow (1)*
12. Chop saw (1)*
13. Combine w/grain & corn headers (1)*
14. Cotton picker (1)*
15. Cultivator, row crop (1)*
16. Cultivator, field (1)*
17. Dirt bucket (1)*
18. Disk (1)*
19. Ditcher, water furrow (1)*
20. Drill press (1)*
21. Eye wash and shower, portable (to meet EPA anticipated requirements) (1)
22. Fertilizer applicator, dry (1)
23. Grain drill, (modern) (1)
24. Grinder, bench (1)*
25. Grinder, surface (1)*
26. Harrow, tumbling (1)*
27. Hipper (1)*
28. Land plane (1)*
29. Laser system (for leveling land on grade) (1)*
30. Marker, row (1 set)*
31. Parts washer (1)*
32. Pesticide storage unit, portable (1)
33. Pesticide storage unit, portable (1)
34. Planter, (modern row crop no-till, if possible) (1)*

35. Plow, rice levee (10)*
36. Probe, grain (2)
37. Rotary cutter (1)*
38. Rotary hoe (1)*
39. Separator/tester, grain foreign material, portable (1)
40. Shop ventilation system (1)
41. Soil roller/packer (1)*
42. Spray boom, overhead w/pump and tanks (1)
43. Sub-soiler, parabolic (1)*
44. Tester, grain moisture (2)
45. Tractor (120 hp minimum) (1)*
46. Trailer, equipment (1)*
47. Trailer, goose neck equipment (1)*
48. Trailer, water (1)*
49. Trailer, cotton (1)*
50. Trailer, small grain transport (1)*
51. Truck, 3/4 - 1 ton, (equipped with tool boxes) (1)*
52. Vise, bench (2)*
53. Welder/torch, oxyacetylene (2)

* Used equipment is acceptable provided it is available and in satisfactory condition.

SUGGESTED INSTRUCTIONAL AIDS FOR POSTSECONDARY AGRICULTURAL BUSINESS AND MANAGEMENT TECHNOLOGY CLUSTER

1. Agricultural Satellite Information System (ASIS) (1)
2. Board, liquid marker (1)
3. Camcorder w/tripod and carrying case (1)
4. Cart, AV (for TV-VCR) (1)
5. Cart, AV (for overhead projector) (1)
6. Computer LCD display panel (to show computer files on overhead projector) (1)
7. Digital camera, compatible with microcomputer video system (1)
8. Display easel (1)
9. Micro video system (1)
10. Overhead projector (high intensity for use with LCD panel) (1)
11. Phone service for Internet connection (1)
12. Screen, backlit projection (1)
13. Slide projector (1)
14. Software for computer operation and applications
15. TV-VCR (1)
16. Video out (Microcomputer to TV monitor) (1)

APPENDIX A:

RELATED ACADEMIC TOPICS

APPENDIX A

RELATED ACADEMIC TOPICS FOR COMMUNICATIONS

C1 Interpret written material.
C2 Interpret visual materials (maps, charts, graphs, tables, etc.).
C3 Listen, comprehend, and take appropriate actions.
C4 Access, organize, and evaluate information.
C5 Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.
C6 Communicate ideas and information effectively using various oral and written forms for a variety of audiences and purposes.

EXPANDED TOPICS FOR COMMUNICATIONS

TOPIC C1: Interpret written material.

C1.01 Read and follow complex written directions.
C1.02 Recognize common words and meanings associated with a variety of occupations.
C1.03 Adjust reading strategy to purpose and type of reading.
C1.04 Use sections of books and reference sources to obtain information.
C1.05 Compare information from multiple sources and check validity.
C1.06 Interpret items and abbreviations used in multiple forms.
C1.07 Interpret short notes, memos, and letters.
C1.08 Comprehend technical words and concepts.
C1.09 Use various reading techniques depending on purpose for reading.
C1.10 Find, read, understand, and use information from printed matter or electronic sources.

TOPIC C2: Interpret visual materials (maps, charts, graphs, tables, etc.).

C2.01 Use visuals in written and in oral presentations.
C2.02 Recognize visual cues to meaning (layout, typography, etc.).
C2.03 Interpret and apply information using visual materials.

TOPIC C3: Listen, comprehend, and take appropriate action.

C3.01 Identify and evaluate orally-presented messages according to purpose.
C3.02 Recognize barriers to effective listening.
C3.03 Recognize how voice inflection changes meaning.
C3.04 Identify speaker signals requiring a response and respond accordingly.
C3.05 Listen attentively and take accurate notes.
C3.06 Use telephone to receive information.

C3.07 Analyze and distinguish information from formal and informal oral presentations.

TOPIC C4: Access, organize, and evaluate information.

C4.01 Distinguish fact from opinion.
C4.02 Use various print and non-print sources for specialized information.
C4.03 Interpret and distinguish between literal and figurative meaning.
C4.04 Interpret written or oral communication in relation to context and writer's point of view.
C4.05 Use relevant sources to gather information for written or oral communication.

TOPIC C5: Use written and/or oral language skills to work cooperatively to solve problems, make decisions, take actions, and reach agreement.

C5.01 Select appropriate words for communication needs.
C5.02 Use reading, writing, listening, and speaking skills to solve problems.
C5.03 Compose inquiries and requests.
C5.04 Write persuasive letters and memos.
C5.05 Edit written reports, letters, memos, and short notes for clarity, correct grammar, and effective sentences.
C5.06 Write logical and understandable statements, phrases, or sentences for filling out forms, for correspondence or reports.
C5.07 Write directions or summaries of processes, mechanisms, events, or concepts.
C5.08 Select and use appropriate formats for presenting reports.
C5.09 Convey information to audiences in writing.
C5.10 Compose technical reports and correspondence that meet accepted standards for written communications.

TOPIC C6: Communicate ideas and information using oral and written forms for a variety of audiences and purposes.

C6.01 Give complex oral instructions.
C6.02 Describe a business or industrial process/mechanism.
C6.03 Participate effectively in group discussions and decision making.
C6.04 Produce effective oral messages utilizing different media.
C6.05 Explore ideas orally with partners.
C6.06 Participate in conversations by volunteering information when appropriate and asking relevant questions when appropriate.
C6.07 Restate or paraphrase a conversation to confirm one's own understanding.
C6.08 Gather and provide information utilizing different media.

C6.09 Prepare and deliver persuasive, descriptive, and demonstrative oral presentations.

RELATED ACADEMIC TOPICS FOR MATHEMATICS

M1 Relate number relationships, number systems, and number theory.
M2 Explore patterns and functions.
M3 Explore algebraic concepts and processes.
M4 Explore the concepts of measurement.
M5 Explore the geometry of one-, two-, and three-dimensions.
M6 Explore concepts of statistics and probability in real world situations.
M7 Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.

EXPANDED TOPICS FOR MATHEMATICS

TOPIC M1: Relate number relationships, number systems, and number theory.

M1.01 Understand, represent, and use numbers in a variety of equivalent forms (integer, fraction, decimal, percent, exponential, and scientific notation) in real world and mathematical problem situations.
M1.02 Develop number sense for whole numbers, fractions, decimals, integers, and rational numbers.
M1.03 Understand and apply ratios, proportions, and percents in a wide variety of situations.
M1.04 Investigate relationships among fractions, decimals, and percents.
M1.05 Compute with whole numbers, fractions, decimals, integers, and rational numbers.
M1.06 Develop, analyze, and explain procedures for computation and techniques for estimations.
M1.07 Select and use an appropriate method for computing from among mental arithmetic, paper-and-pencil, calculator, and computer methods.
M1.08 Use computation, estimation, and proportions to solve problems.
M1.09 Use estimation to check the reasonableness of results.

TOPIC M2: Explore patterns and functions.

M2.01 Describe, extend, analyze, and create a wide variety of patterns.
M2.02 Describe and represent relationships with tables, graphs, and rules.
M2.03 Analyze functional relationships to explain how a change in one quantity results in a change in another.
M2.04 Use patterns and functions to represent and solve problems.
M2.05 Explore problems and describe results using graphical, numerical, physical, algebraic, and verbal mathematical models or representations.

M2.06 Use a mathematical idea to further their understanding of other mathematical ideas.
M2.07 Apply mathematical thinking and modeling to solve problems that arise in other disciplines, such as art, music, and business.

TOPIC M3: Explore algebraic concepts and processes.

M3.01 Represent situations and explore the interrelationships of number patterns with tables, graphs, verbal rules, and equations.
M3.02 Analyze tables and graphs to identify properties and relationships and to interpret expressions and equations.
M3.03 Apply algebraic methods to solve a variety of real world and mathematical problems.

TOPIC M4: Explore the concepts of measurement.

M4.01 Estimate, make, and use measurements to describe and compare phenomena.
M4.02 Select appropriate units and tools to measure to the degree of accuracy required in a particular situation.
M4.03 Extend understanding of the concepts of perimeter, area, volume, angle measure, capacity, and weight and mass.
M4.04 Understand and apply reasoning processes, with special attention to spatial reasoning and reasoning with proportions and graphs.

TOPIC M5: Explore the geometry of one-, two-, and three-dimensions.

M5.01 Identify, describe, compare, and classify geometric figures.
M5.02 Visualize and represent geometric figures with special attention to developing spatial sense.
M5.03 Explore transformations of geometric figures.
M5.04 Understand and apply geometric properties and relationships.
M5.05 Classify figures in terms of congruence and similarity and apply these relationships.

TOPIC M6: Explore the concepts of statistics and probability in real world situations.

M6.01 Systematically collect, organize, and describe data.
M6.02 Construct, read, and interpret tables, charts, and graphs.
M6.03 Develop an appreciation for statistical methods as powerful means for decision making.
M6.04 Make predictions that are based on exponential or theoretical probabilities.

M6.05 Develop an appreciation for the pervasive use of probability in the real world.

TOPIC M7: Apply mathematical methods, concepts, and properties to solve a variety of real-world problems.

M7.01 Use computers and/or calculators to process information for all mathematical situations.
M7.02 Use problem-solving approaches to investigate and understand mathematical content.
M7.03 Formulate problems from situations within and outside mathematics.
M7.04 Generalize solutions and strategies to new problem situations.

RELATED ACADEMIC TOPICS FOR SCIENCE

S1 Explain the Anatomy and Physiology of the human body.
S2 Apply the basic biological principles of Plants, Viruses and Monerans, Algae, Protista, and Fungi.
S3 Relate the nine major phyla of the kingdom animalia according to morphology, anatomy, and physiology.
S4 Explore the chemical and physical properties of the earth to include Geology, Meteorology, Oceanography, and the Hydrologic Cycle.
S5 Investigate the properties and reactions of matter to include symbols, formulas and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.
S6 Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.
S7 Explore the principles of genetic and molecular Biology to include the relationship between traits and patterns of inheritance, population genetics, the structure and function of DNA, and current applications of DNA technology.
S8 Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.

EXPANDED TOPICS FOR SCIENCE

TOPIC S1: Explain the Anatomy and Physiology of the human body.

S1.01 Recognize common terminology and meanings.
S1.02 Explore the relationship of the cell to more complex systems within the body.

S1.03 Summarize the functional anatomy of all the major body systems.
S1.04 Relate the physiology of the major body systems to its corresponding anatomy.
S1.05 Compare and contrast disease transmission and treatment within each organ system.
S1.06 Explore the usage of medical technology as related to human organs and organ systems.
S1.07 Explain the chemical composition of body tissue.

TOPIC S2: Apply the basic biological principles of Plants, Viruses and Monerans, Algae, Protista, and Fungi.

S2.01 Identify the major types and structures of plants, viruses, monera, algae protista, and fungi.
S2.02 Explain sexual and asexual reproduction.
S2.03 Describe the ecological importance of plants as related to the environment.
S2.04 Analyze the physical chemical and behavioral process of a plant.

TOPIC S3: Relate the nine major phyla of the kingdom animalia according to morphology, anatomy, and physiology.

S3.01 Explain the morphology, anatomy, and physiology of animals.
S3.02 Describe the characteristics, behaviors, and habitats of selected animals.

TOPIC S4: Explore the chemical and physical properties of the earth to include Geology, Meteorology, Oceanography, and the Hydrologic Cycle.

S4.01 Examine minerals and their identification, products of the rock cycle, byproducts of weathering, and the effects of erosion.
S4.02 Relate the Hydrologic Cycle to include groundwater its zones, movement, and composition; surface water systems, deposits, and runoff.
S4.03 Consider the effects of weather and climate on the environment.
S4.04 Examine the composition of seawater; wave, tides, and currents; organisms, environment, and production of food; energy, food and mineral resources of the oceans.

TOPIC S5: Investigate the properties and reactions of matter to include symbols, formulas and nomenclature, chemical equations, gas laws, chemical bonding, acid-base reactions, equilibrium, oxidation-reduction, nuclear chemistry, and organic chemistry.

S5.01 Examine the science of chemistry to include the nature of matter, symbols, formulas and nomenclature, and chemical equations.

S5.02 Identify chemical reactions including precipitation, acids-bases, and reduction-oxidation.
S5.03 Explore the fundamentals of chemical bonding and principles of equilibrium.
S5.04 Relate the behavior of gases.
S5.05 Investigate the structure, reactions, and uses of organic compounds; and investigate nuclear chemistry and radiochemistry.

TOPIC S6: Explore the principles and theories related to motion, mechanics, electricity, magnetism, light energy, thermal energy, wave energy, and nuclear physics.

S6.01 Examine fundamentals of motion of physical bodies and physical dynamics.
S6.02 Explore the concepts and relationships among work, power, and energy.
S6.03 Explore principles, characteristics, and properties of electricity, magnetism, light energy, thermal energy, and wave energy.
S6.04 Identify principles of modern physics related to nuclear physics.

TOPIC S7: Explore the principles of genetic and molecular Biology to include the relationship between traits and patterns of inheritance; population genetics, the structure and function of DNA, and current applications of DNA technology.

S7.01 Examine principles, techniques, and patterns of traits and inheritance in organisms.
S7.02 Apply the concept of population genetics to both microbial and multicellular organism.
S7.03 Identify the structure and function of DNA and the uses of DNA technology in science, industry, and society.

TOPIC S8: Apply concepts related to the scientific process and method to include safety procedures for classroom and laboratory; use and care of scientific equipment; interrelationships between science, technology and society; and effective communication of scientific results in oral, written, and graphic form.

S8.01 Apply the components of scientific processes and methods in classroom and laboratory investigations.
S8.02 Observe and practice safe procedures in the classroom and laboratory.
S8.03 Demonstrate proper use and care for scientific equipment.
S8.04 Investigate science careers, and advances in technology.
S8.05 Communicate results of scientific investigations in oral, written, and graphic form.

APPENDIX B:

WORKPLACE SKILLS

APPENDIX B
WORKPLACE SKILLS FOR THE 21ST CENTURY

WP1 Allocates resources (time, money, materials and facilities, and human resources).

WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.

WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.

WP4 Applies systems concept including basic understanding, monitoring and correction system performance, and designing and improving systems.

WP5 Selects, applies, and maintains/troubleshoots technology.

WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.

APPENDIX C:

STUDENT COMPETENCY PROFILES

STUDENT COMPETENCY PROFILE FOR AGRICULTURAL BUSINESS AND MANAGEMENT

Student: _____

This record is intended to serve as a method of noting student achievement of the competencies in each course. It can be duplicated for each student and serve as a cumulative record of competencies achieved in the program.

In the blank before each competency, place the date on which the student mastered the competency.

Agricultural Records (AGT 1613)

_____ 1. Describe the components of agriculture records.
_____ 2. Describe capital accounts and their financial components.
_____ 3. Describe the different types of credit.
_____ 4. Develop components for production records.

Agricultural Sales (AGT 2213)

_____ 1. Analyze consumer needs and services.
_____ 2. Describe techniques for selling.
_____ 3. Describe sales from the customer's view point.

Applied Agricultural Economics (AGT 2263)

_____ 1. Describe agribusiness relationship to the domestic and foreign economies.
_____ 2. Discuss demand theory and how a demand curve is developed.
_____ 3. Discuss the economic facts associated with single variable inputs.
_____ 4. Define the relationship between cost and length of run when used in planning and decision making.
_____ 5. Analyze government influence on the production and price of farm commodities.

Applied Principles of Animal Production (AGT 1214)

_____ 1. Describe the types of production cycle of livestock.
_____ 2. Describe and contrast the characteristics of different breeds of livestock.
_____ 3. Describe the reproductive processes of livestock.
_____ 4. Describe nutritive needs of livestock.
_____ 5. Describe the importance of a livestock herd health program.

Applied Principles of Plant Production (AGT 1313)

_____ 1. Describe the interrelationship of the major parts of a plant and how they have adapted to the environment.
_____ 2. Identify the components of a typical plant cell and describe their function(s).
_____ 3. Describe the chemical composition of plants.
_____ 4. Describe the processes and interrelationship of photosynthesis and respiration in green plants.
_____ 5. Describe the methods of weed, insect, and plant disease control.
_____ 6. Describe the genetics of plant breeding.
_____ 7. Explain the nutritional requirements for plants.

Applied Soils-Conservation and Use (AGT 1714)

_____ 1. Describe the soil formation process.
_____ 2. Describe the different physical properties of soils.
_____ 3. Develop soil management strategies for sustaining soil productivity.
_____ 4. Use a transit level to design and calculate the cost of structures designed to protect and develop soil productive capacity.

Human Relations in Agribusiness (AGT 2313)

_____ 1. Define human relations.
_____ 2. Develop communications skills.
_____ 3. Explain the importance of utilizing proper personnel management in the agribusiness workplace.
_____ 4. Plan and organize career development plans.

Principles of Agricultural Management (AGT 1413)

_____ 1. Explain the role and function of management in an agricultural production system.
_____ 2. Construct budgets used in decision making for agricultural enterprises and farms.
_____ 3. Perform whole farm planning and budgeting.
_____ 4. Apply classical formats used as tests for the financial health of a business.

Principles of Agricultural Marketing (AGT 1513)

_____ 1. Describe how a marketing systems develops.
_____ 2. Identify the factors which affect basic commodity prices.
_____ 3. Use hedging with a particular agricultural commodity.

_____ 4. Use commodity options to set price floors with futures contracts.
_____ 5. Develop a marketing plan.

Special Problem in Agricultural Business and Management (AGT 216(1-3)

_____ 1. Prepare a written agreement.
_____ 2. Prepare a written report of activities.
_____ 3. Follow written guideline for work experience programs.

Supervised Agricultural Experience (AGT 211(1-6)

_____ 1. Prepare a training agreement.
_____ 2. Prepare and submit written reports of the supervised experience.
_____ 3 Follow written guidelines for work experience programs.

Survey of Agricultural Technology I, II, III, IV

_____ 1. Development of leadership and employability skills.
_____ 2. Identify the major agriculture industries and their relationships to the agricultural community.

STUDENT COMPETENCY PROFILE FOR ANIMAL HUSBANDRY

Student:_____

This record is intended to serve as a method of noting student achievement of the competencies in each course. It can be duplicated for each student and serve as a cumulative record of competencies achieved in the program.

In the blank before each competency, place the date on which the student mastered the competency.

Animal Reproduction (AGT 1913)

_____ 1. Differentiate between phenotype and genotype.
_____ 2. Explain the male reproductive tract.
_____ 3. Explain the function of sperm.
_____ 4. Explain the female reproductive tract.
_____ 5. Explain the estruscycle.
_____ 6. Perform reproductive management techniques.

Applied Animal Nutrition (AGT 2663)

_____ 1. Identify the classes of nutrients including protein, fat, carbohydrates, vitamins, minerals, and water.
_____ 2. Identify and contrast the differences in the digestive systems of the different animal.
_____ 3. Explain the process by which feedstuffs are analyzed.
_____ 4. Formulate rations for all classes of farm animals.
_____ 5. Identify the various sources of feed stuffs for livestock.

Beef Production I (AGT 2713)

_____ 1. Classify the common breeds by ease of management.
_____ 2. Describe the genetics and breeding of beef cattle.
_____ 3. Explain the importance of sire selection and cow selection.
_____ 4. Compare fall calving versus spring calving.
_____ 5. Examine factors that influence herd size.
_____ 6. Demonstrate beef cattle management skills.
_____ 7. Explain beef cattle nutrition.

Beef Production II (AGT 2723)

_____ 1. Explain how the cost of beef production can be reduced by improving efficiency.

_____ 2. Manage beef cattle health.
_____ 3. Discuss beef cattle production.
_____ 4. Describe facilities required for beef cattle.
_____ 5. Explain methods for marketing cattle.
_____ 6. Design a feed lot.

Fish Management (AGT 2513)

_____ 1. Analyze the trends of commercial fish farming.
_____ 2. Determine pond requirements.
_____ 3. Determine stocking rates.
_____ 4. Analyze feeding plan.
_____ 5. Determine water quality.
_____ 6. Manage fish health.
_____ 7. Control fish predation.
_____ 8. Determine factors involved in harvesting and marketing fish.
_____ 9. Describe other systems of aquaculture than catfish production.
_____ 10. Describe controls for off-flavor.

Fitting/Grooming/Judging (AGT 1813)

_____ 1. Examine and operate equipment used in fitting and grooming livestock.
_____ 2. Explain the importance of livestock production.
_____ 3. Explain the evaluation process of beef cattle.
_____ 4. Explain the evaluation process of swine.
_____ 5. Explain the evaluation process of sheep.
_____ 6. Explain the evaluation process of horses.

Horse Production (AGT 2863)

_____ 1. Explain the history and development of the horse industry.
_____ 2. Assess the functional anatomy of the horse.
_____ 3. Quote the difference in types of horse breeding programs.
_____ 4. Develop a horse nutrition program.
_____ 5. Develop a horse health program.
_____ 6. Examine market avenues for horses.

Principles of Meats Processing I (AGT 2913)

_____ 1. Describe the structure and composition of meat.
_____ 2. Describe how the present trend in diet has affected four eating habits.
_____ 3. Outline pork slaughter and processing.

_____ 4. Outline beef slaughtering and processing.
_____ 5. Discuss storage of meat.

Principles of Meats Processing II (AGT 2923)

_____ 1. Demonstrate the safe use of meat cutting equipment.
_____ 2. Explain the use of meats as food.
_____ 3. Explain the federal and state meat inspection programs.
_____ 4. Compare the USDA inspection Service and the USDA Grading Service.
_____ 5. Demonstrate the breakdown of wholesale beef cuts.
_____ 6. Outline the breakdown of small species carcasses.
_____ 7. Explain quality control factors.

Swine Production (AGT 2813)

_____ 1. Compare swine production to other agriculture production systems.
_____ 2. Choose methods of selection for herd improvement.
_____ 3. Discuss swine nutrition.
_____ 4. Cite causes prevention and cure of diseases in swine.
_____ 5. Discuss the major breeds of swine in the U.S.
_____ 6. Explain swine reproduction.

STUDENT COMPETENCY PROFILE FOR FIELD CROPS

Student:_____

This record is intended to serve as a method of noting student achievement of the competencies in each course. It can be duplicated for each student and serve as a cumulative record of competencies achieved in the program.

In the blank before each competency, place the date on which the student mastered the competency.

Agricultural Machinery and Shop Management (AGT 2563)

_____ 1. Identify safety procedures with all tools and equipment.
_____ 2. Measure machine capacity.
_____ 3. Determine how to improve field efficiency of machines.
_____ 4. Calculate the economic alternatives of acquiring farm machinery.
_____ 5. Demonstrate the skills needed to perform structural repair to farm machinery.
_____ 6. Demonstrate the ability to perform minor mechanical maintenance on farm machinery.

Agricultural Structures (AGT 2113)

_____ 1. Demonstrate the importance of buildings associated with agricultural production.
_____ 2. Describe the costs associated with agricultural buildings.
_____ 3. Explain the purpose and design of crop processing and storage facilities.
_____ 4. Explain the importance of insulation and heat flow in agricultural buildings.
_____ 5. Demonstrate the importance of ventilation in agricultural structures.
_____ 6. Apply the general theory behind using basic electricity on the farm.
_____ 7. Design a modern farm shop.

Crop Production (Cotton and Rice) (AGT 2373)

_____ 1. Develop and determine knowledgeable skills concerning crop production.
_____ 2. Identify natural resource/crop relationships.
_____ 3. Classify the different types of environmental problems experienced in crop production in Mississippi.
_____ 4. Identify tillage systems and production practices used for crop production Mississippi.

_____ 5. Apply the principles of plant mapping to production of cotton.
_____ 6. Explain the inputs for use of Gossym Comax in cotton production.
_____ 7. Explain the principles of using chemical growth regulators and their use in controlling cotton growth.

Crop Production (General) (AGT 2363)

_____ 1. Develop knowledgeable skills concerning crop production.
_____ 2. Identify natural resource/crop relationships.
_____ 3. Classify the different types of environmental problems experienced in crop production in Mississippi.
_____ 4. Identify fillage systems and production practices used for crop production in Mississippi.
_____ 5. Identify methods for maintaining soil productivity in Mississippi.
_____ 6. Examine water management practices.
_____ 7. Identify machinery needs for crop production.
_____ 8. Identify the environmental factors which affect crop production in Mississippi.

Forage and Pasture Crops (AGT 2613)

_____ 1. Describe the uses of forages.
_____ 2. Compare the composition and nutritive value of forages.
_____ 3. Examine the effects that farm management practices have on forage.
_____ 4. Identify common forages found in the south.

Insects and Controls (AGT 2463)

_____ 1. Identify insects associate with field crops.
_____ 2. Identify types of insect damage incurred in field crops.
_____ 3. Explain the life cycle of various insects.
_____ 4. Identify different insecticide pesticide categories.
_____ 5. Identify different classes and formulations of insecticides and how each affects insects.
_____ 6. Describe precautions to be followed to protect people, animals, and crops when applying insecticides.
_____ 7. Interpret information on an insecticide container label.
_____ 8. Explain the relationship between how and when to apply insecticides.
_____ 9. Compare aerial versus ground applications.
_____ 10. Identify alternative methods of insect control.
_____ 11. Identify insect damage levels.

Weed Control (AGT 2413)

_____ 1. Define and identify weeds.
_____ 2. Explain ways in which weeds harm agricultural crops.
_____ 3. Describe the different types, classes, and formulations of herbicides and how each affects crops and weeds.
_____ 4. Explain precautions to be followed to avoid injury to people, animals, and crops when applying herbicides.
_____ 5. Interpret information on an herbicide container label.
_____ 6. Determine how and when to apply herbicides.
_____ 7. Calculate drifts and determine amounts of herbicides to be applied.
_____ 8. Calibrate an herbicide applicator to deliver the prescribed amount of an herbicide to a given area.
_____ 9. Meet requirements for a private applicator's license.