

2012 - 2013

**Florida Department of Education
Curriculum Framework**

Program Title: Agritechnology
Program Type: Career Preparatory
Career Cluster: Agriculture, Food and Natural Resources

Secondary – Career Preparatory	
Program Number	8106800
CIP Number	0101039901
Grade Level	9-12, 30, 31
Standard Length	3 credits
Teacher Certification	AGRICULTUR 1 @2 AGRI PROD #7
CTSO	FFA
SOC Codes (all applicable)	19-4011
Facility Code	203 http://www.fldoe.org/edfacil/sref.asp (State Requirements for Educational Facilities)
Targeted Occupation List	http://www.labormarketinfo.com/wec/TargetOccupationList.htm
Perkins Technical Skill Attainment Inventory	http://www.fldoe.org/workforce/perkins/perkins_resources.asp
Industry Certifications	http://www.fldoe.org/workforce/fcpea/default.asp
Statewide Articulation	http://www.fldoe.org/workforce/dwdframe/artic_frame.asp

Purpose

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Agriculture, Food and Natural Resources career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Agriculture, Food and Natural Resources career cluster.

The content includes but is not limited to instruction in animal and plant production and processing; agriculture marketing; agricultural mechanics; employability skills; mathematics; basic science; biological sciences; communications; and human-relations skills.

Program Structure

This program is a planned sequence of instruction consisting of three courses. Planned and Supervised Agricultural Experiences (SAE) must be provided through one or more of the following: (1) directed laboratory experience, (2) student project, (3) placement for experience, or (4) cooperative education.

The following table illustrates the secondary program structure:

OCP	Course Number	Course Title	Length	SOC Code	Level
A	8106810	Agriscience Foundations 1	1 credit	19-4011	3
	8106820	Agritechnology 1	1 credit		2
	8106830	Agritechnology 2	1 credit		2

Laboratory Activities

Laboratory activities are an integral part of this program. These activities include instruction in the use of safety procedures, tools, equipment, materials, and processes related to these occupations. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

Academic Alignment

Some or all of the courses in this program have been aligned to the Next Generation Sunshine State Standards contained in specific math and science core academic courses. This alignment resulted from a collaborative review by Career and Technical Education (CTE) teachers and core academic teachers. The table below contains the results of the alignment efforts. Data shown in the table includes the number of academic standards in the CTE course, the total number of math and science standards contained in the academic course, and the percentage of alignment to the CTE course. The following academic courses were included in the alignment (see code for use in table).

Academic Subject Area	Academic Course
Math	Algebra 1 (ALG1) Algebra 2 (ALG2) Geometry (GEO)
Science	Anatomy/Physiology Honors (APH) Astronomy Solar/Galactic Honors (ASGH) Biology 1 (BIO1) Chemistry 1 (CHM1) Earth-Space Science (ESS) Genetics (GEN) Marine Science 1 Honors (MS1H) Physical Science (PS) Physics 1 (PHY1)

Course	Math			Science								
	ALG1	ALG2	GEO	APH	ASGH	BIO1	CHM1	ESS	GEN	MS1H	PS	PHY1
Ag. Foundations	9/36 25%	#	2/45 4%	32/53 60%	19/52 37%	40/56 71%	21/55 38%	22/58 38%	23/35 66%	28/42 67%	24/56 43%	19/53 36%
Agritechnology 1	12/36 33%	#	11/45 24%	12/53 23%	11/52 21%	21/56 28%	19/55 35%	11/58 19%	13/35 37%	22/42 52%	22/56 39%	16/53 30%

Course	Math			Science								
Agritechnology	10/36	1/41	15/45	10/53	11/52	18/56	13/55	15/58	9/35	23/42	19/56	15/53
2	28%	2%	33%	19%	21%	32%	24%	26%	26%	55%	34%	28%

** Alignment pending

Alignment attempted, but no correlation to academic course.

Extended Student Supervision

Because of the production and marketing cycle of the agricultural industries, this program requires individual instruction and supervision of students for the entire period beyond the 180-day school year.

Career and Technical Student Organization (CTSO)

FFA is the appropriate career and technical student organization for providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered. The activities of such organizations are defined as part of the curriculum in accordance with Rule 6A-6.065, F.A.C.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Essential Skills

Essential skills identified by the Division of Career and Adult Education have been integrated into the standards and benchmarks of this program. These skills represent the general knowledge and skills considered by industry to be essential for success in careers across all career clusters. Students preparing for a career served by this program at any level should be able to demonstrate these skills in the context of this program. A complete list of Essential Skills and links to instructional resources in support of these Essential Skills are published on the CTE Essential Skills page of the FL-DOE website (http://www.fldoe.org/workforce/dwdframe/essential_skills.asp).

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities as identified on the secondary student's IEP or 504 plan or postsecondary student's accommodations' plan to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their postsecondary service provider. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

In addition to accommodations, some secondary students with disabilities (students with an Individual Educational Plan (IEP) served in Exceptional Student Education or ESE) will need

modifications to meet their needs. Modifications change the outcomes or what the student is expected to learn, e.g., modifying the curriculum of a secondary career and technical education course. Note postsecondary curriculum cannot be modified.

Some secondary students with disabilities (ESE) may need additional time (i.e., longer than the regular school year), to master the student performance standards associated with a regular Occupational Completion Point (OCP) or a Modified Occupational Completion Point (MOCP). If needed, a student may enroll in the same career and technical course more than once. Documentation should be included in the IEP that clearly indicates that it is anticipated that the student may need an additional year to complete an OCP/MOCP. The student should work on different competencies and new applications of competencies each year toward completion of the OCP/MOCP. After achieving the competencies identified for the year, the student earns credit for the course. It is important to ensure that credits earned by students are reported accurately. The district's information system must be designed to accept multiple credits for the same course number (for eligible students with disabilities).

Articulation

For details on articulation agreements which correlate to programs and industry certifications refer to http://www.fldoe.org/workforce/dwdframe/artic_frame.asp.

Bright Futures/Gold Seal Scholarship

Course substitutions as defined in the Comprehensive Course Table for this program area may be used to qualify a student for Florida's Gold Seal Vocational Scholarship, providing all other eligibility requirements are met. Eligibility requirements are available online at https://www.osfaffelp.org/bfiehs/fnbpcm02_CCTMain.aspx.

Fine Arts/Practical Arts Credit

Many courses in CTE programs meet the Fine Arts/Practical Arts credit for high school graduation. A listing of approved CTE courses is published each year as a supplemental resource to the Course Code Directory (<http://www.fldoe.org/articulation/CCD/default.asp>).

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Describe the history of agriculture and its influence on the global economy.
- 02.0 Practice agriscience safety skills and procedures.
- 03.0 Apply scientific and technological principles to agriscience issues.
- 04.0 Apply environmental principles to the agricultural industry.
- 05.0 Investigate and utilize basic scientific skills and principles in plant science.
- 06.0 Investigate and utilize basic scientific skills and principles in animal science.
- 07.0 Demonstrate the use of agriscience tools, equipment, and instruments.
- 08.0 Demonstrate agribusiness, employability and human relation skills.
- 09.0 Apply leadership and citizenship skills.
- 10.0 Explore the scope of the agriscience industry.
- 11.0 Provide for proper animal health and nutrition.
- 12.0 Identify procedures in animal production and reproduction.
- 13.0 Develop procedures for exhibiting animals.

- 14.0 Compare, select, and use plant production systems.
- 15.0 Fertilize plants and crops.
- 16.0 Irrigate plants and crops.
- 17.0 Control plant pests.
- 18.0 Operate, maintain, and service facilities, tools, and equipment.
- 19.0 Describe procedures for harvesting and marketing agricultural products.
- 20.0 Apply principles of agribusiness finance.
- 21.0 Demonstrate leadership, employability, communication, and human-relations skills.
- 22.0 Demonstrate language arts knowledge and skills.
- 23.0 Demonstrate mathematics knowledge and skills.
- 24.0 Demonstrate science knowledge and skills.
- 25.0 Use oral and written communication skills in creating, expressing and interpreting information and ideas.
- 26.0 Solve problems using critical thinking skills, creativity and innovation.
- 27.0 Use information technology tools.
- 28.0 Describe the roles within teams, work units, departments, organizations, inter-organizational systems, and the larger environment.
- 29.0 Demonstrate the importance of health, safety, and environmental management systems in organizations and their importance to organizational performance and regulatory compliance.
- 30.0 Demonstrate leadership and teamwork skills needed to accomplish team goals and objectives.
- 31.0 Describe the importance of professional ethics and legal responsibilities.
- 32.0 Explain the importance of employability skill and entrepreneurship skills.
- 33.0 Demonstrate personal money-management concepts, procedures, and strategies.

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**Florida Department of Education
Student Performance Standards**

Course Title: Agriscience Foundations 1
Course Number: 8106810
Course Credit: 1

Course Description:

This course is designed to develop competencies in the areas of agricultural history and the global impact of agriculture; career opportunities; scientific and research concepts; biological and physical science principles; environmental principles; agriscience safety; principles of leadership; and agribusiness, employability, and human relations skills in agriscience. Laboratory-based activities are an integral part of this course. These include the safe use and application of appropriate technology, scientific testing and observation equipment.

Standards included in this course of instruction have been aligned to the academic courses shown below. This table shows the number of aligned benchmarks, the total number of academic benchmarks, and the percentage of alignment.

Math		Science					
Algebra 1	9/36 25%	Biology 1	40/56 71%	Anatomy/Physiology Honors	32/53 60%	Astronomy Solar/Galactic Honors	19/52 37%
Algebra 2	#	Chemistry 1	21/55 38%	Genetics	23/35 66%	Marine Science 1 Honors	28/42 67%
Geometry	2/45 4%	Physics 1	19/53 36%	Earth-Space Science	22/58 38%	Physical Science	24/56 43%

** Alignment pending

Alignment attempted, but no correlation to academic course.

01.0 Describe the history of agriculture and its influence on the global economy--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
 SC.912.E.5.7; SC.912.L.14.1; SC.912.L.15.13; SC.912.L.17.1, 5, 13, 18, 20;
 SC.912.N.4.2; MA.912.A.2.1; MA.912.S.3.1, 3; MA.912.A.10.1, 2, 3

- 01.01 Investigate the origin and history of agriculture and its relationship to science and technology.
- 01.02 Analyze the impact of agriculture on the local, state, national and global economy.
- 01.03 Identify significant career patterns/shifts in the history of the agricultural industry.
- 01.04 Examine the role of the agricultural industry in the interaction of population, food, energy, and the environment.

02.0 Practice agriscience safety skills and procedures--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.L.14.6; SC.912.L.15.4; SC.912.L.16.7, 10; SC.912.L.17.12, 14, 15, 16, 18;
SC.912.N.1.1, 2, 3; SC.912.N.4.2; SC.912.P.8.7; MA.912.A.2.1, 2; MA.912.S.3.1, 2

- 02.01 Identify the common causes and prevention of accidents in agriscience operations.
- 02.02 Demonstrate proper safety precautions and use of personal protective equipment.
- 02.03 Evaluate the food safety responsibilities that occur along the food supply chain.
- 02.04 Extract and utilize pertinent information from a container label and/or Material Safety Data Sheet (MSDS) following Environmental Protection Agency (EPA), Worker Protection Standard, and Occupational Safety and Health Agency (OSHA) regulations.
- 02.05 Identify proper disposal of hazardous waste materials and biohazards.
- 02.06 Describe emergency procedures.

03.0 Apply scientific and technological principles to agriscience issues--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.E.7.8; SC.912.L.14.2, 3, 4, 5, 6, 8; SC.912.L.15.14, 15; SC.912.L.16.1, 2, 3, 4, 7, 9, 10, 12, 14, 15, 16, 17; SC.912.N.1.1, 2, 3, 4, 6, 7; SC.912.N.2.2, 5; SC.912.N.3.1; SC.912.N.4.1; MA.912.S.3.1, 9; MA.912.S.4.2; MA.912.S.5.1, 2, 3, 4, 5; MA.912.S.1.2; MA.912.A.1.4; MA.912.A.10.1

- 03.01 Employ scientific measurement skills.
- 03.02 Demonstrate safe and effective use of common laboratory equipment.
- 03.03 Identify the parts and functions of plant and animal cells.
- 03.04 Describe the phases of cell reproduction.
- 03.05 Implement the scientific method and science process skills through the design and completion of an agriscience research project.
- 03.06 Interpret, analyze, and report data.
- 03.07 Investigate DNA and genetics applications in agriscience including the theory of probability.
- 03.08 Evaluate advances in biotechnology that impact agriculture (e.g. transgenic crops, biological controls, etc.).

04.0 Apply environmental principles to the agricultural industry--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.E.6.1, 4; SC.912.E.7.1, 4, 6, 7, 8; SC.912.L.17.4, 7, 8, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20; SC.912.L.18.12

- 04.01 Research how different climactic and geological activity influences agriculture.
- 04.02 Describe various ecosystems as they relate to the agriculture industry.
- 04.03 Describe the environmental resources (soil, water, air) necessary for agriculture production.
- 04.04 Identify regulatory agencies that impact agricultural practices.
- 04.05 Apply Best Management Practices that enhance the natural environment.
- 04.06 Identify conservation practices related to natural resources.

05.0 Investigate and utilize basic scientific skills and principles in plant science--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.E.5.4; SC.912.L.14.2, 3, 5, 6, 7, 8, 9, 53; SC.912.L15.9, 14, 15; SC.912.L.17.6, 12, 16, 17, 19; SC.912.L.18.7, 8, 9; SC.912.P.8.5, 7; MA.912.A.2.1; MA.912.S.3.2; MA.912.A.10.1; MA.912.D.7.2

- 05.01 Identify and describe the specializations within the plant science industry.
- 05.02 Categorize plants based on specific characteristics according to industry and scientific standards.
- 05.03 Examine the processes of plant growth including photosynthesis and respiration.
- 05.04 Identify the nutrients required for plant growth from the periodic table and explain their functions.
- 05.05 Analyze information from a fertilizer label.
- 05.06 Propagate and grow plants through sexual and/or asexual reproduction.
- 05.07 Investigate the impacts of various pests and propose solutions for their control.
- 05.08 Investigate the nature and properties of food, fiber, and by-products from plants.
- 05.09 Explore career opportunities in plant science.

06.0 Investigate and utilize basic scientific skills and principles in animal science--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.14.11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 28, 29, 31, 32, 33, 34, 36, 40, 41, 42, 43, 45, 46, 47, 48, 51; SC.912.L.15.4, 5, 6, 7; SC.912.L.16.3, 4; SC.912.L.17.11, 12, 13, 15, 16, 17, 18, 19; MA.912.D.7.2; MA.912.F.5.1, 2

- 06.01 Explain the economic importance of animals and the products obtained from animals.
- 06.02 Categorize animals according to use, type, breed, and scientific classification.
- 06.03 Illustrate correct terminologies for animal species and conditions (e.g. age, sex, etc.) within those species.
- 06.04 Compare basic internal and external anatomy of animals.
- 06.05 Demonstrate scientific practices in the management, health, safety, and technology of the animal agriculture.
- 06.06 Compare and contrast animal welfare issues.
- 06.07 Investigate the nature and properties of food, fiber, and by-products from animals.
- 06.08 Explore career opportunities in animal science.

07.0 Demonstrate the use of agriscience tools, equipment, and instruments--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.14.4; SC.912.P.12.2, 3, 4, 9; MA.912.A.1.4, 5; MA.912.A.2.1; MA.912.G.3.1; MA.912.G.8.6; MA.912.S.3.2; MA.912.G.2.5; MA.912.G.7.5; MA.912.A.5.1, 4

- 07.01 Select and demonstrate proper use of agriscience tools, equipment, and instruments.

- 07.02 Examine various physical science principles as applied in selected mechanical applications (e.g. levers, pulleys, hydraulics, and internal combustion).
- 07.03 Solve time, distance, area, volume, ratio, proportion, and percentage problems in agriscience.
- 07.04 Service and maintain agriscience equipment, instruments, facilities, and supplies.

08.0 Demonstrate agribusiness, employability and human relation skills--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
MA.912.A.1.4, 5; MA.912.S.1.1

- 08.01 Develop, implement, and maintain work based learning through Supervised Agricultural Experiences (SAE).
- 08.02 Utilize a record keeping system to collect, interpret, and analyze data.
- 08.03 Enhance oral communications through telephone, interview and presentation skills.
- 08.04 Enhance written communication by developing resumes and business letters.
- 08.05 Demonstrate interpersonal (nonverbal) communication skills.
- 08.06 Demonstrate good listening skills.

09.0 Apply leadership and citizenship skills--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
MA.912.D.7.2

- 09.01 Identify and describe leadership characteristics.
- 09.02 Identify opportunities to apply acquired leadership skills.
- 09.03 Identify and demonstrate ways to be an active citizen.
- 09.04 Participate in community based learning activities.
- 09.05 Demonstrate the ability to work cooperatively.
- 09.06 Conduct formal and informal meetings using correct parliamentary procedure skills.
- 09.07 Identify the opportunities for leadership development available through the National FFA Organization and/or professional organizations.

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**Florida Department of Education
Student Performance Standards**

Course Title: Agritechnology 1
Course Number: 8106820
Course Credit: 1

Course Description:

This course is designed to develop competencies in the areas of agriscience industry careers; prevention and treatment of livestock diseases; livestock anatomy; wholesale cuts of meat; animal reproduction and identification; animal safety; animal-health certification; plant growth; plant fertilization; safe use of pesticides; maintenance of tools and equipment; record keeping; and employability skills.

Standards included in this course of instruction have been aligned to the academic courses shown below. This table shows the number of aligned benchmarks, the total number of academic benchmarks, and the percentage of alignment.

Math		Science					
Algebra 1	12/36 33%	Biology 1	21/56 38%	Anatomy/Physiology Honors	12/53 23%	Astronomy Solar/Galactic Honors	11/52 21%
Algebra 2	12/36 33%	Chemistry 1	19/55 35%	Genetics	13/35 37%	Marine Science 1 Honors	22/42 52%
Geometry	12/36 33%	Physics 1	16/53 30%	Earth-Space Science	11/58 19%	Physical Science	22/56 39%

** Alignment pending

Alignment attempted, but no correlation to academic course.

10.0 Explore the scope of the agriscience industry--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
 SC.912.N.1.1, 4, 5; SC.912.N.4.1; MA.912.S.3.3

10.01 Investigate career opportunities in agriscience industries.

10.02 Describe training requirements for entry and advancement in agriscience careers.

11.0 Provide for proper animal health and nutrition--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
 SC.912.L.14.6, 31, 52; SC.912.L.16.7; SC.912.L.17.1, 2, 6, 8, 11, 14, 15, 16, 17, 18, 20;
 SC.912.L.18.2, 3, 4; SC.912.N.1.1, 2, 4, 5, 6; MA.912.A.1.1, 2, 4, 5; MA.912.A.5.1, 4, 7;
 MA.912.A.10.1, 2,3; MA.912.G.8.2; MA.912.S.1.1, 2

11.01 Demonstrate proper methods to clean and disinfect animal equipment and facilities.

11.02 Explain proper disposal of animal waste with regards to sanitation, economics, and environmental implications.

12.0 Identify procedures in animal production and reproduction--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.14.31, 32, 33; SC.912.L.15.2, 5, 6; SC.912.L.16.1, 2, 10, 13; SC.912.N.3.5; MA.912.A.1.1, 2, 4, 5; MA.912.A.2.1, 4; MA.912.P.1.1, 2; MA.912.D.7.2

- 12.01 Examine livestock and poultry anatomy.
- 12.02 Identify commercially important breeds of animals.
- 12.03 Assemble desirable characteristics of breeding and market animals.
- 12.04 Evaluate wholesale cuts of beef, pork, lamb, and poultry.
- 12.05 Compare and select appropriate breeding methods for different agricultural enterprises.
- 12.06 Explain the reproductive cycles of commercially important animals.
- 12.07 Identify signs of animal pregnancy, parturition, and infertility.
- 12.08 Describe approved care for newborn animals.
- 12.09 Describe methods of animal identification.
- 12.10 Describe methods of restraining, loading, handling, and transporting animals safely.

13.0 Develop procedures for exhibiting animals--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.16.10; MA.912.A.1.1, 4; MA.912.A.2.1; MA.912.S.1.1, 2; MA.912.S.3.1; MA.912.D.7.2

- 13.01 Demonstrate the procedures for preparing, maintaining, and handling commercially important animals.
- 13.02 Compare and contrast appropriate evaluation criteria for animals.
- 13.03 Prepare appropriate shipping and health certificates required for exhibiting or marketing animals.

14.0 Compare, select, and use plant production systems--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.14.7, 53; SC.912.L.15.5, 6; SC.912.L.16.17; SC.912.L.17.4; SC.912.L.18.7; MA.912.A.1.1, 2, 4; MA.912.G.1.1, 2, 4; MA.912.S.3.1, 2

- 14.01 Compare different plant production systems.
- 14.02 Propagate, transplant and grow plants.
- 14.03 Select and prepare a site and/or a seedbed for planting.
- 14.04 Identify methods of pruning plants to achieve desired growth and to maintain health.

15.0 Fertilize plants and crops--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.17.10, 16; SC.912.P.8.8, 11; MA.912.A.1.2, 4, 5; MA.912.A.5.1, 7;

MA.912.A.10.1, 2; MA.912.G.2.7; MA.912.G.5.1, 3, MA.912.G.8.2; 4; MA.912.S.1.1, 2; MA.912.S.2.2;

- 15.01 Interpret information on a fertilizer label.
- 15.02 Compare sources and forms of nutrients.
- 15.03 Determine methods of applying fertilizer materials.

18.0 Operate, maintain, and service facilities, tools, and equipment--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.P.10.3, 14, 15, 16, 18; MA.912.A.1.1, 2, 4, 5; MA.912.A.5.14; MA.912.A.10.1;
MA.912.G.2.7; MA.912.G.4.1, 4, 5

- 18.01 Use and maintain hand tools and power equipment (e.g., power saws, welders).
- 18.02 Maintain and service small gasoline engines.

20.0 Apply principles of agribusiness finance--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.4.2; MA.912.A.1.1, 2, 3, 4, 5, 6, 8; MA.912.A.2.1, 2, 3, 7; MA.912.F.4.3;
MA.912.S.3.2, 3

- 20.01 Identify major sources of credit for agribusiness.
- 20.02 Complete a business loan application.
- 20.03 Maintain and interpret agribusiness financial records including depreciation, inventory, and budgets.

21.0 Demonstrate leadership, employability, communication, and human-relations skills--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.1.1, 3, 5, 7; SC.912.N.2.2, 5; SC.912.N.4.1, 2; MA.912.A.1.1, 4;

- 21.01 Conduct group meetings using parliamentary procedure and public speaking skills.
- 21.02 Identify appropriate work and personal habits.

22.0 Demonstrate language arts knowledge and skills--The students will be able to: AF2.0

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.1.1; SC.912.N.3.5

- 22.01 Locate, comprehend and evaluate key elements of oral and written information.
AF2.4

23.0 Demonstrate mathematics knowledge and skills--The students will be able to: AF3.0

This standard supports the following Next Generation Sunshine State Standards:

SC.912.N.3.5; MA.912.A.1.4, 5; MA.912.A.2.2, 6, 7, 13; MA.912.A.3.2, 3;
MA.912.A.10.1, 2; MA.912.D, 4.1; MA.912.G.8.2; MA.912.G.8.3; MA.912.S.1.2;
MA.912.S.3.2, 3;

23.01 Demonstrate knowledge of arithmetic operations. AF3.2

23.02 Construct charts/tables/graphs using functions and data. AF3.5

24.0 Demonstrate science knowledge and skills--The students will be able to: AF4.0

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.1.1, 2, 3, 4, 4, 6, 7; MA.912.A.2.1; MA.912.3.1; MA.912.A.10.1, 2;
MA.912.S.1.1, 2; MA.912.S.2.1; MA.912.S.3.2, 3;

24.01 Discuss the role of creativity in constructing scientific questions, methods and explanations. AF4.1

25.0 Use oral and written communication skills in creating, expressing and interpreting information and ideas--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.1.1; MA.912.G8.2, 3; MA.912.A.2.1, 2; MA.912.A.10.1;

25.01 Locate, organize and reference written information from various sources. CM3.0

25.02 Interpret verbal and nonverbal cues/behaviors that enhance communication.
CM6.0

25.03 Apply active listening skills to obtain and clarify information. CM7.0

26.0 Solve problems using critical thinking skills, creativity and innovation--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:
MA.912.A.10.1, 2; SC.912.N.1.1, 4, 5, 6, 7; SC.912.N.2.1, 2, 4, 5; SC.912.N.3.5;
SC.912.N.4.1; MA.912.A.2.2, 13; MA.912.A.10.1; MA.912.S.2.1; MA.912.S.3.1;

26.01 Employ critical thinking skills independently and in teams to solve problems and make decisions. PS1.0

26.02 Employ critical thinking and interpersonal skills to resolve conflicts. PS2.0

27.0 Use information technology tools--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:
MA.912.A.3.11, 12;

27.03 Employ computer operations applications to access, create, manage, integrate, and store information. IT3.0

27.04 Employ collaborative/groupware applications to facilitate group work. IT4.0

28.0 Describe the roles within teams, work units, departments, organizations, inter-organizational systems, and the larger environment--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:

SC.912.E.7.7, 9; SC.912.L.17.11; SC.912.N.1.1, 4; SC.912.N.2.2; MA.912.A.10.1; MA.912.A.8.1, 7;

28.01 Explain the impact of the global economy on business organizations.

- 29.0 Demonstrate the importance of health, safety, and environmental management systems in organizations and their importance to organizational performance and regulatory compliance--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.E.5.10; SC.912.E.6.4; SC.912.E.7.8; SC.912.N.1.1, 4, 7;

29.01 Describe personal and jobsite safety rules and regulations that maintain safe and healthy work environments. SHE1.0

29.02 Explain emergency procedures to follow in response to workplace accidents.

29.03 Create a disaster and/or emergency response plan. SHE2.0

- 30.0 Demonstrate leadership and teamwork skills needed to accomplish team goals and objectives--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.1.1, 2, 3, 4, 5, 6, 7;

30.01 Employ leadership skills to accomplish organizational goals and objectives. LT1.0

30.02 Establish and maintain effective working relationships with others in order to accomplish objectives and tasks. LT3.0

- 31.0 Describe the importance of professional ethics and legal responsibilities--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.1.3, 4, 7; SC.912.N.2.2, 4, 5

31.01 Evaluate and justify decisions based on ethical reasoning. ELR1.0

- 32.0 Explain the importance of employability skill and entrepreneurship skills--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.1.1; SC.912.N.2.4, 5;

32.01 Identify and demonstrate positive work behaviors needed to be employable. ECD1.0

32.02 Develop personal career plan that includes goals, objectives, and strategies. ECD2.0

32.03 Maintain a career portfolio to document knowledge, skills, and experience. ECD5.0

32.04 Evaluate and compare employment opportunities that match career goals. ECD6.0

32.05 Examine and describe entrepreneurship opportunities as a career planning option. ECD10.0

33.0 Demonstrate personal money-management concepts, procedures, and strategies--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.1.1, 5, 6, 7; SC.912.N.2.1, 2, 4, 5; SC.912.N.3.5; MA.912.A.1.1, 2, 3, 4, 5, 7, 13; MA.912.A.3.11, MA.912.A.10.1, 2, 3; MA.912.D.7.2; MA.912.F.3.6, 14; MA.912.F.4.1, 2, 3, 8, 10, 11, 12, 14; LA.910.3.13

- 33.01 Identify and describe the services and legal responsibilities of financial institutions. FL2.0
- 33.02 Describe the effect of money management on personal and career goals. FL3.0
- 33.03 Develop a personal budget and financial goals. FL3.1

2012 - 2013

**Florida Department of Education
Student Performance Standards**

Course Title: Agritechnology 2
Course Number: 8106830
Course Credit: 1

Course Description:

This course is designed to develop competencies in the areas of job and training requirements; professional organizations; crop identification; planting crops; fertilizer calculations and application; irrigation; pest control; harvesting, packing, and grading crops, safe equipment operation; finance; and employability skills.

Standards included in this course of instruction have been aligned to the academic courses shown below. This table shows the number of aligned benchmarks, the total number of academic benchmarks, and the percentage of alignment.

Math		Science					
Algebra 1	10/36 28%	Biology 1	18/56 32%	Anatomy/Physiology Honors	10/53 19%	Astronomy Solar/Galactic Honors	11/52 21%
Algebra 2	10/36 28%	Chemistry 1	13/55 24%	Genetics	9/35 26%	Marine Science 1 Honors	23/42 55%
Geometry	10/36 28%	Physics 1	15/53 28%	Earth-Space Science	15/58 26%	Physical Science	19/56 34%

** Alignment pending

Alignment attempted, but no correlation to academic course.

10.0 Explore the scope of the agriscience industry--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
 SC.912.N.1.1, 4, 5; SC.912.N.4.1

- 10.03 Identify and describe the importance of professional and trade organizations.
 10.04 Examine and interpret trade journals, and academic research in the agriscience industry.

11.0 Provide for proper animal health and nutrition--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
 SC.912.L.14.6, 31, 52; SC.912.L.16.7; SC.912.L.17.1, 2, 6, 8, 11, 14, 15, 16, 17, 18, 20;
 SC.912.L.18.2, 3, 4; SC.912.N.1.1, 2, 4, 5, 6; MA.912.A.1.1, 2, 4, 5; MA.912.A.5.1, 4, 7;
 MA.912.A.10.1, 2, 3; MA.912.G.8.2; MA.912.S.1.1, 2

- 11.03 Recognize, describe and demonstrate prevention and treatment of common animal diseases, disorders, and pests.
 11.04 Read, interpret, and demonstrate correct uses of pesticides, medication, and other additives according to their labels.

- 11.05 Describe nutritional requirements of animals.
- 11.06 Formulate and compute least-cost feed rations.
- 11.07 Select and apply growth stimulators and implants.
- 11.08 Determine feeding rates and methods of feeding animals.

14.0 Compare, select, and use plant production systems--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.L.14.7, 53; SC.912.L.15.5, 6; SC.912.L.16.17; SC.912.L.17.4; SC.912.L.18.7;
MA.912.A.1.1, 2, 4; MA.912.G.1.1, 2, 4; MA.912.S.3.1, 2

- 14.05 Recommend varieties of local commercial plants and field crops.
- 14.06 Calculate planting rate and spacing.
- 14.07 Operate and adjust planting equipment.

15.0 Fertilize plants and crops--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.L.17.10, 16; SC.912.P.8.8, 11; MA.912.A.1.2, 4, 5; MA.912.A.5.1, 7;
MA.912.A.10.1, 2; MA.912.G.2.7; MA.912.G.5.1, 3; MA.912.G.8.2; 4; MA.912.S.1.1, 2;
MA.912.S.2.2;

- 15.04 Access why the resources soil provides supports life.
- 15.05 Demonstrate how the importance of soil characteristics affects agriculture.
- 15.06 Develop fertilization schedules and calculate fertilizer rates for plants; solve time, distance, area, and volume problems in agriscience.
- 15.07 Identify common nutrient-deficiency symptoms in plants.
- 15.08 Calibrate fertilization equipment and fertilize plants.

16.0 Irrigate plants and crops--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.E.7.5, 6, 7, 8, 9; SC.912.L.17.10; MA.912.A.1.1, 2, 4, 5; MA.912.A.5.1, 4, 7;
MA.912.A.10.1, 2; MA.912.G.1.1; MA.912.G.5.1, 3, 4; MA.912.G.6.1, 2, 4, 5;
MA.912.G.8.2; MA.912.S.1.1, 2; MA.912.S.2.2; MA.912.S.3.1, 3, 6

- 16.01 Recognize soil and plant conditions indicating irrigation needs and develop an irrigation schedule.
- 16.02 Compare and select irrigation equipment and methods.
- 16.03 Install, operate, maintain, and repair irrigation equipment.

17.0 Control plant pests--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.L.17.6, 8, 9, 13, 17; MA.912.A.5.1, 4, 7; MA.912.A.10.1, 2; MA.912.G.8.2;
MA.912.S.1.1, 2, 4, 5; MA.912.S.2.2;

- 17.01 Compare and contrast common plant pests and their damages.
- 17.02 Diagram life cycles of insects, pests, and diseases.
- 17.03 Interpret the procedures and requirements for obtaining a restricted-use-pesticide operator's license.

17.04 Select, mix, and apply a no restricted chemical according to the label and local, state, federal and EPA regulations.

17.05 Describe biological, chemical and cultural methods of controlling plant pests.

18.0 Operate, maintain, and service facilities, tools, and equipment--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.P.10.3, 14, 15, 16, 18; MA.912.A.1.1, 2, 4, 5; MA.912.A.5.14; MA.912.A.10.1;
MA.912.G.4.1, 4, 5;

18.03 Demonstrate basic facility maintenance, installation, or repair. (e.g., welding, electricity, plumbing, fencing, construction)

18.04 Safely operate, maintain, service, and repair equipment.

19.0 Describe procedures for harvesting and marketing agricultural products--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.P.8.10; MA.912.A.1.1, 2, 4, 5; MA.912.A.2.1, 2, 4, 5; MA.912.A.10.1, 2;
MA.912.S.3.1, 2, 3

19.01 Determine maturity, condition, quality, and volume of products to be harvested.

19.02 Describe procedures for harvesting products.

19.03 Collect and interpret market reports and identify market outlets for agricultural products.

19.04 Organize a marketing program for agricultural products.

19.05 Assess kinds and types of storage facilities for agricultural products.

19.06 Grade, treat, pack, and/or store harvested products.

20.0 Apply principles of agribusiness finance--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.4.2; MA.912.A.1.1, 2, 3, 4, 5, 8; MA.912.A.2.1, 2, 3, 7; MA.912.A.5.1, 4, 7;
MA.912.A.10.1, 2; MA.912.F.3.4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 17; MA.912.F.4.4, 6, 7

20.04 Explain the purposes and structures of contracts, leases, deeds, and insurance policies.

20.05 Maintain and interpret agribusiness financial records including depreciation, inventory, and budgets.

21.0 Demonstrate leadership, employability, communications, and human-relations skills--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.1.1, 3, 5, 7; SC.912.N.2.2, 5; SC.912.N.4.1, 2; MA.912.A.1.1, 4;

21.03 Complete a job application.

22.0 Demonstrate language arts knowledge and skills--The students will be able to: AF2.0

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.1.1; SC.912.N.3.5

22.02 Draft, revise, and edit written documents using correct grammar, punctuation and vocabulary. AF2.5

22.03 Present information formally and informally for specific purposes and audiences. AF2.9

23.0 Demonstrate mathematics knowledge and skills--The students will be able to: AF3.0

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.3.5; MA.912.A.1.4, 5; MA.912.A.2.2, 6, 7, 13; MA.912.A.3.2, 3;
MA.912.A.10.1, 2; MA.912.D, 4.1; MA.912.G.8.2; MA.912.G.8.3; MA.912.S.1.2;
MA.912.S.3.2, 3;

23.02 Analyze and apply data and measurements to solve problems and interpret documents. AF3.4

24.0 Demonstrate science knowledge and skills--The students will be able to: AF4.0

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.1.1, 2, 3, 4, 4, 6, 7; MA.912.A.2.1; MA.912.3.1; MA.912.A.10.1, 2;
MA.912.S.1.1, 2; MA.912.S.2.1; MA.912.S.3.2, 3;

24.02 Formulate scientifically investigable questions, construct investigations, collect and evaluate data, and develop scientific recommendations based on findings. AF4.3

25.0 Use oral and written communication skills in creating, expressing and interpreting information and ideas--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.1.1; MA.912.G8.2, 3; MA.912.A.2.1, 2; MA.912.A.10.1;

25.04 Select and employ appropriate communication concepts and strategies to enhance oral and written communication in the workplace. CM1.0

25.05 Design, develop and deliver formal and informal presentations using appropriate media to engage and inform diverse audiences. CM5.0

25.06 Develop and interpret tables and charts to support written and oral communications. CM8.0

25.07 Exhibit public relations skills that aid in achieving customer satisfaction. CM10.0

26.0 Solve problems using critical thinking skills, creativity and innovation--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:
MA.912.A.10.1, 2; SC.912.N.1.1, 4, 5, 6, 7; SC.912.N.2.1, 2, 4, 5; SC.912.N.3.5;
SC.912.N.4.1; MA.912.A.2.2, 13; MA.912.A.10.1; MA.912.S.2.1; MA.912.S.3.1;

26.03 Identify and document workplace performance goals and monitor progress toward those goals. PS3.0

26.04 Conduct technical research to gather information necessary for decision-making.
PS4.0

27.0 Use information technology tools--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:
MA.912.A.3.11, 12;

27.01 Use Personal Information Management (PIM) applications to increase workplace efficiency. IT1.0

27.02 Employ technological tools to expedite workflow including word processing, databases, reports, spreadsheets, multimedia presentations, electronic calendar, contacts, email, and internet applications. IT2.0

28.0 Describe the roles within teams, work units, departments, organizations, inter-organizational systems, and the larger environment--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.E.7.7, 9; SC.912.L.17.11; SC.912.N.1.1, 4; SC.912.N.2.2; MA.912.A.10.1;
MA.912.A.8.1, 7;

28.01 Describe the nature and types of business organizations. SY1.0

28.02 Explain the effect of key organizational systems on performance and quality.

28.03 List and describe quality control systems and/or practices common to the workplace. SY2.0

30.0 Demonstrate leadership and teamwork skills needed to accomplish team goals and objectives--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.1.1, 2, 3, 4, 5, 6, 7;

30.03 Conduct and participate in meetings to accomplish work tasks. LT4.0

30.04 Employ mentoring skills to inspire and teach others. LT5.0

31.0 Describe the importance of professional ethics and legal responsibilities--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:
SC.912.N.1.3, 4, 7; SC.912.N.2.2, 4, 5

31.02 Evaluate alternative responses to workplace situations based on personal, professional, ethical, legal responsibilities, and employer policies. ELR1.1

31.03 Identify and explain personal and long-term consequences of unethical or illegal behaviors in the workplace. ELR1.2

31.04 Interpret and explain written organizational policies and procedures. ELR2.0

32.0 Explain the importance of employability skill and entrepreneurship skills--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:

SC.912.N.1.1; SC.912.N.2.4, 5;

32.06 Examine licensing, certification, and industry credentialing requirements.
ECD3.0

32.07 Identify and exhibit traits for retaining employment. ECD7.0

32.08 Identify opportunities and research requirements for career advancement.
ECD8.0

32.09 Research the benefits of ongoing professional development. ECD9.0

33.0 Demonstrate personal money-management concepts, procedures, and strategies--The students will be able to:

This standard supports the following Next Generation Sunshine State Standards:

SC.912.N.1.1, 5, 6, 7; SC.912.N.2.1, 2, 4, 5; SC.912.N.3.5; MA.912.A.1.1, 2, 3, 4, 5, 7, 13; MA.912.A.3.11, MA.912.A.10.1, 2, 3; MA.912.D.7.2; MA.912.F.3.6, 14; MA.912.F.4.1, 2, 3, 8, 10, 11, 12, 14; LA.910.3.13

33.04 Complete financial instruments for making deposits and withdrawals. FL3.2

33.05 Maintain financial records. FL3.3

33.06 Read and reconcile financial statements. FL3.4

33.07 Research, compare and contrast investment opportunities.