2012 - 2013

Florida Department of Education
Curriculum Framework

Program Title: **Horticulture Science and Services**
Program Type: **Career Preparatory**
Career Cluster: **Agriculture, Food and Natural Resources**

Secondary – Career Preparatory	
Program Number	8121600
CIP Number	0101060610
Grade Level	9-12, 30, 31
Standard Length	6 credits
Teacher Certification	AGRICULTUR 1 @2 HORTICULT #7
CTSO	FFA
SOC Codes (all applicable)	45-2092, 19-1013
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 horticulture and landscape industries within the Agriculture, Food and Natural Resources career cluster.

The content includes but is not limited to planning, management, finance, technical and production skills, underlying principles of technology, labor issues, community issues, and health, safety and environmental issues.

Program Structure

This program is a planned sequence of instruction consisting of a core and two completion points.

The following table illustrates the secondary program structure:

OCP	Course Number	Course Title	Length	SOC Code	Level
	8106810	Agriscience Foundations 1	1 credit		3
	8121510	Introductory Horticulture 2	1 credit		3
A	8121520	Horticulture Science 3	1 credit	45-2092	3
	8121610	Horticulture Science and Services 4	1 credit		2
	8121620	Horticulture Science and Services 5	1 credit		2
B	8121630	Horticulture Science and Services 6	1 credit	19-1013	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%

Course	Math			Science								
Introductory Horticulture 2	8/36 22%	1/41 2%	7/45 16%	4/53 8%	2/52 4%	18/56 32%	4/55 7%	4/58 7%	4/35 11%	5/42 12%	4/56 7%	4/53 8%
Horticulture Science 3	2/36 6%	#	8/45 18%	8/53 15%	4/52 8%	18/56 32%	8/55 15%	5/58 9%	5/35 14%	9/42 21%	8/56 14%	5/53 9%
Horticulture Science and Services 4	5/36 14%	#	11/45 24%	2/53 4%	#	10/56 18%	1/55 2%	#	6/35 17%	2/42 5%	1/56 2%	#
Horticulture Science and Services 5	3/36 8%	#	#	2/53 4%	4/52 8%	14/56 25%	7/55 13%	4/58 7%	7/35 20%	7/42 17%	7/56 13%	5/53 9%
Horticulture Science and Services 6	#	#	#	1/53 2%	4/52 8%	5/56 9%	7/55 13%	4/58 7%	2/35 6%	6/42 14%	7/56 13%	5/53 9%

** *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

The Certified Horticulture Professional certification has a statewide articulation agreement approved by the Florida State Board of Education. It articulates to the Landscape and Horticulture Technology (0101060500) program for six credits.

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 Describe the horticulture industry.
11.0 Identify safety procedures in the workplace.
12.0 Identify and classify plants.
13.0 Propagate plants.
14.0 Identify growing media and apply fertilizers.
15.0 Irrigate plants and turf.
16.0 Describe Integrated Pest Management approaches.
17.0 Describe the principles and requirements of plant growth.
18.0 Apply best management practices in the horticulture industry.
19.0 Identify principles of landscape design.
20.0 Demonstrate leadership, employability, communications, and human relations skills.
21.0 Demonstrate language arts knowledge and skills.
22.0 Demonstrate mathematics knowledge and skills.
23.0 Demonstrate science knowledge and skills.
24.0 Use oral and written communication skills in creating, expressing and interpreting information and ideas.
25.0 Solve problems using critical thinking skills, creativity and innovation.
26.0 Use information technology tools.
27.0 Describe the roles within teams, work units, departments, organizations, inter-organizational systems, and the larger environment.
28.0 Demonstrate the importance of health, safety, and environmental management systems in organizations and their importance to organizational performance and regulatory compliance.
29.0 Demonstrate leadership and teamwork skills needed to accomplish team goals and objectives.
30.0 Describe the importance of professional ethics and legal responsibilities.
31.0 Explain the importance of employability skill and entrepreneurship skills.
32.0 Demonstrate personal money-management concepts, procedures, and strategies.
33.0 Apply principles of landscape design and maintenance.
34.0 Harvest, transport, and install plant materials.
35.0 Operate, repair, and maintain tools and equipment.
36.0 Identify emerging technologies in the horticulture industry.
37.0 Identify and classify plants.
38.0 Prepare growing media.
39.0 Irrigate plants.
40.0 Maintain and analyze records
41.0 Apply proper fertilizer application components.
42.0 Fertilize plant material.
43.0 Control Pests.

2012 - 2013

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.

2012 - 2013

Florida Department of Education
Student Performance Standards

Course Title: **Introductory Horticulture 2**
Course Number: **8121510**
Course Credit: **1**

Course Description:

This course is designed to develop competencies in the areas of career opportunities; global importance of agriculture; plant classification; propagation; growing media; nutritional needs; fertilization; irrigation; pest identification; pest control, pruning; plant installation; transplanting; safe hand-tool use; 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	8/36 22%	**Biology 1**	18/56 32%	**Anatomy/Physiology Honors**	4/53 8%	**Astronomy Solar/Galactic Honors**	2/52 4%
Algebra 2	1/41 2%	**Chemistry 1**	4/55 7%	**Genetics**	4/35 11%	**Marine Science 1 Honors**	5/42 12%
Geometry	7/45 16%	**Physics 1**	4/53 8%	**Earth-Space Science**	4/58 7%	**Physical Science**	4/56 7%

** *Alignment pending* # *Alignment attempted, but no correlation to academic course.*

10.0 Describe the horticulture industry--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: MA.912.F.5.1, 2

10.01 Describe the importance of horticulture to the American and global economies.
10.02 Identify career opportunities in horticulture and educational requirements and continuing education opportunities for horticulture careers.
10.03 Describe the importance of horticulture to the environment, including sustainability practices
10.04 Identify professional organizations and certifications for the horticultural industry.

11.0 Identify safety procedures in the workplace--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.17.14, 17; MA.912.F.5.1, 4;

11.01 Identify the common causes of accidents in the horticulture industry.
11.02 Demonstrate proper safety precautions and use of personal protective equipment specific to the horticulture industry.

11.03 Explain, identify and utilize pertinent information from a container label and/or Material Safety Data Sheet (MSDS) according to Environmental Protection Agency (EPA), Worker Protection Standard and Occupational Safety and Health Agency (OHSA) Regulations.

12.0 Identify and classify plants--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.14.2, 3, 7, 8, 10, 53; SC.912.L.15.4, 5, 6; SC; SC.912.L.18.7, 8, 9; MA.912.S.3.2; LA.910.3.13;

12.01 Identify plants by scientific and common names.
12.02 Classify plants botanically.
12.03 Write scientific names for plants.

13.0 Propagate plants--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.14.7, 8; SC.912.L.16.3, 12, 14, 16; MA.912.P.1.2

13.01 Identify propagating and growing facilities and structures.
13.02 Prepare propagation media.
13.03 Select and collect propagation materials.
13.04 Demonstrate propagation by sexual and asexual methods.
13.05 Demonstrate environmental controls for propagation materials.
13.06 Identify and select proper rooting hormones based on plant characteristics.

14.0 Identify growing media and apply fertilizers--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.E.6.2, 4; SC.912.L.18.11; MA.912.A.2.1, MA.912.S.3.2; LA.910.3.13; SC.912.P.8.1, 11;

14.01 Identify soil and media materials.
14.02 Identify nutritional needs of plants.
14.03 Identify symptoms of nutritional deficiencies and toxicities of plants.
14.04 Identify types and kinds of fertilizers.
14.05 Identify methods of distributing fertilizers.
14.06 Interpret information on a label of fertilizer used in Florida.

15.0 Irrigate plants and turf--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.18.12; MA.912.G.2.5, 7; MA.912.A.1.5; MA.912.A.10.1; SC.912.E.7.1;

15.01 Identify water needs of plants.
15.02 Irrigate plants at recommended rates.
15.03 Identify the symptoms of excessive water and water stress in plants.
15.04 Describe the basic irrigation systems and principles used in the landscape and nursery.

16.0 Describe Integrated Pest Management approaches--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.14.9

16.01 Identify common pests of plants.
16.02 Describe life cycles of common pests of plants.
16.03 Recognize signs of damage from pests.

17.0 Describe the principles and requirements of plant growth--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.E.7.1; SC.912.L.18.7, 9, 10; SC.912.P.10.1; MA.912.A.3.5; MA.912.C.5.8; MA.912.A.10.1; MA.912.S.3.2;

17.01 Explain how the energy of sunlight is converted to chemical energy through the process of photosynthesis.
17.02 Explain how photosynthesis in plants is directly affected by various environmental factors such as light and temperature.
17.03 Explain the process of respiration and the flow of energy in plants.
17.04 Describe the influence of light and temperature on plant growth including photo tropism.

18.0 Apply best management practices in the horticulture industry--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.17.9, 11, 12, 13, 14, 15; SC.912.N.1.1; SC.912.N.2.4; MA.912.A.10.2; MA.912.G.1.1; 2, 4; MA.912.G.2.5, 7; MA.912.G.4.1, MA.912.G.8.6

18.01 Identify and apply Best Management Practices to reduce pollution and conserve water.
18.02 Identify and apply Best Management Practices on fertilizer recommendations for Florida plants and turf.

19.0 Identify principles of landscape design --The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.17.17; MA.912.G.1.2; MA.912.G.2.2, 4, 5, 7; MA.912.A.2.13; MA.912.A.3.1; MA.912.G.5.3, 4, 7; MA.912.G.6.5; MA.912.G.8.6 MA.912.F.3.15;

19.01 Compare and contrast the use of line, form, texture and color in designing landscapes.
19.02 Identify the principles of design (unity, repetition, balance, emphasis and scale) as they apply to landscapes.
19.03 Identify points of emphasis and major design areas in the residential landscape.
19.04 Identify plant selection for a residential landscape using Florida Friendly Landscape Principles.
19.05 Read and interpret a landscape plan.
19.06 Develop skills for drawing and identifying symbols.

19.07 Draw and design a landscape plan for a small garden.
19.08 Construct a landscape display.

20.0 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.1.7; MA.912.A.1.1, 4;

20.01 Conduct group meetings using parliamentary procedure and public speaking skills.

21.0 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

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

22.0 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;

22.01 Demonstrate knowledge of arithmetic operations. AF3.2
22.02 Construct charts/tables/graphs using functions and data. AF3.5

23.0 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;

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

24.0 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;

24.01 Locate, organize and reference written information from various sources. CM3.0
24.02 Interpret verbal and nonverbal cues/behaviors that enhance communication. CM6.0
24.03 Apply active listening skills to obtain and clarify information. CM7.0

25.0 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;

25.01 Employ critical thinking skills independently and in teams to solve problems and make decisions. PS1.0
25.02 Employ critical thinking and interpersonal skills to resolve conflicts. PS2.0

26.0 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;

26.01 Employ computer operations applications to access, create, manage, integrate, and store information. IT3.0
26.02 Employ collaborative/groupware applications to facilitate group work. IT4.0

27.0 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;

27.01 Explain the impact of the global economy on business organizations

28.0 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;

28.01 Describe personal and jobsite safety rules and regulations that maintain safe and healthy work environments. SHE1.0
28.02 Explain emergency procedures to follow in response to workplace accidents.
28.03 Create a disaster and/or emergency response plan. SHE2.0

29.0 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;

29.01 Employ leadership skills to accomplish organizational goals and objectives. LT1.0
29.02 Establish and maintain effective working relationships with others in order to accomplish objectives and tasks. LT3.0

30.0 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

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

31.0 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;

31.01 Identify and demonstrate positive work behaviors needed to be employable. ECD1.0
31.02 Develop personal career plan that includes goals, objectives, and strategies. ECD2.0
31.03 Maintain a career portfolio to document knowledge, skills, and experience. ECD5.0
31.04 Evaluate and compare employment opportunities that match career goals. ECD6.0
31.05 Examine and describe entrepreneurship opportunities as a career planning option. ECD10.0

32.0 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

32.01 Identify and describe the services and legal responsibilities of financial institutions. FL2.0
32.02 Describe the effect of money management on personal and career goals. FL3.0
32.03 Develop a personal budget and financial goals. FL3.1

2012 - 2013

Florida Department of Education
Student Performance Standards

Course Title: **Horticulture Science 3**
Course Number: **8121520**
Course Credit: **1**

Course Description:

This course is designed to develop competencies in the areas of industry regulations; plant classification; plant transportation; soil sampling and analysis; fertilizer calculations; recording keeping; irrigation components, water quality; drainage; integrated pest management; pesticide safety and regulations; equipment calibration; chemical growth regulators; xeriscaping; integrated landscape management; safe use of power 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	2/36 6%	**Biology 1**	18/56 32%	**Anatomy/Physiology Honors**	8/53 15%	**Astronomy Solar/Galactic Honors**	4/52 8%
Algebra 2	#	**Chemistry 1**	8/55 15%	**Genetics**	5/35 14%	**Marine Science 1 Honors**	9/42 21%
Geometry	8/45 18%	**Physics 1**	5/53 9%	**Earth-Space Science**	5/58 9%	**Physical Science**	8/56 14%

** *Alignment pending* # *Alignment attempted, but no correlation to academic course.*

11.0 Identify safety procedures in the workplace--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: MA.912.A.10.1

11.04 Identify proper disposal of hazardous waste materials and biohazards specific to the horticulture industry.
11.05 Describe emergency procedures in the horticulture workplace.
11.06 Create preventive measures to avoid hazardous situations.
11.07 Apply problem solving skills to correct a hazardous situation.

12.0 Identify and classify plants--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.14.2, 3, 7, 8, 10, 53; SC.912.L.15.4, 5, 6; SC; SC.912.L.18.7, 8, 9; MA.912.S.3.2

12.04 Describe principles of plant biology and growth.
12.05 Explain the role of plants in the ecosystem.
12.06 Describe the major classifications of plants based on life cycle.
12.07 Demonstrate the use of scientific and common names of plants including genus and specific epithet and cultivar.
12.08 Demonstrate proper use of scientific names.

14.0 Identify growing media and apply fertilizers--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.E.6.2, 4; SC.912.L.18.11; SC.912.P.8.5, 7, 11; MA.912.A.1.4, 5; MA.912.A.2.1, 4; MA.912.S.3.2

14.07 Apply information on a label of fertilizer used in Florida.
14.08 Apply fertilizer and soil amendments.
14.09 Identify materials that are needed to alter pH and calculate the amount to apply to change the pH.
14.10 Demonstrate the procedure for calibrating a fertilizer spreader or injector using appropriate mathematical concepts.
14.11 Identify essential elements and nutrients in plant growth including macronutrients and micronutrients.
14.12 Using references make fertilizer recommendations for ornamental plants, turf grass, and palms.

16.0 Describe Integrated Pest Management approaches--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.14.9; SC.912.L.17.6, 7, 12, 13, 15; MA.912.S.3.2; MA.912.A.10.1;

16.04 Classify insects according to feeding habits.
16.05 Describe biological, chemical, and cultural methods of controlling plant pests.
16.06 Diagnose and outline a plan for controlling pests on a horticultural crop.
16.07 Describe methods of controlling nematode pests on ornamental plants.
16.08 Develop a pest control program for a horticultural crop using Integrated Pest Management.

17.0 Describe the principles and requirements of plant growth--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.14.7, 15, 17, 31; SC.912.N.1.1, 7; SC.912.P.8.8, 9, 10; MA.912.A.1.4; 5; MA.912.A.5.7

17.05 Demonstrate methods of pruning plants.
17.06 Identify appropriate time to prune plants.
17.07 Identify and select pruning tools.
17.08 Demonstrate proper use of pruning tools and care.
17.09 Identify Plant Growth Regulators and their use on horticulture and landscape plants.
17.10 Outline and use a record book for the use of a plant growth regulator on a horticultural or nursery crop.

17.11 Identify specific cultural, mechanical, chemical, and biological methods of weed management.

18.0 Apply best management practices in the horticulture industry--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.17.9, 11, 12, 13, 14, 15; SC.912.N.1.1; SC.912.N.2.4; MA.912.S.3.2; MA.912.G.2.5, 7;

18.03 Identify and apply Best Management Practices on the management and handling of pesticides.
18.04 Identify and apply Best Management Practices for the design and installation of landscapes.

33.0 Apply principles of landscape design and maintenance--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.17.17; MA.912.A.2.13; MA.912.A.3.1; MA.912.G.1.2; MA.912.G.2.2, 4, 5, 7; MA.912.G.5.3, 4, 7; MA.912.G.6.5; MA.912.G.8.6;

33.01 Demonstrate the use of line, form, texture and color in designing landscapes.
33.02 Demonstrate the principles of design (unity, repetition, balance, emphasis and scale) as they apply to landscapes.
33.03 Apply points of emphasis and major design areas in the commercial landscape.
33.04 Identify plant selection for a commercial landscape using Florida Friendly Landscape Principles.
33.05 Create a landscape plan for a residential or commercial property.
33.06 Calculate materials needed according to the identified landscape plan.
33.07 Identify factors in selecting turf for landscape installation.

34.0 Harvest, transport, and install plant materials--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.17.4, 15, 17; MA.912.G.1.1; MA.912.G.6.2, 7

34.01 Determine requirements for preserving plant viability.
34.02 Demonstrate proper landscape plant establishment techniques.
34.03 Select and prepare plants for transporting and transplanting.
34.04 Select horticultural products according to Florida grades and standards.

35.0 Operate, repair, and maintain tools and equipment--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: MA.912.S.3.2; SC.912.N.1.1;

35.01 Perform equipment pre-operational check.
35.02 Identify, maintain, and operate hand tools and power tools.

36.0 Identify emerging technologies in the horticulture industry--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.16.1, 2, 7, 9, 10; SC.912.L.17.15, 17; MA.912.A.5.1, 4; MA.912.P.1.1

36.01 Investigate DNA and genetics applications in horticulture including the theory of probability.
36.02 Evaluate advances in biotechnology that impact horticulture. (e.g. transgenic crops, biological controls, micro propagation etc.).

20.0 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.1.7; MA.912.A.1.1, 4;

20.02 Identify acceptable work habits and personal characteristics.
20.03 Identify acceptable employee hygiene habits.
20.04 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
20.05 Describe the importance of industry certifications.

21.0 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

21.02 Draft, revise, and edit written documents using correct grammar, punctuation and vocabulary. AF2.5
21.03 Present information formally and informally for specific purposes and audiences. AF2.9

22.0 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;

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

23.0 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;

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

24.0 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;

24.04 Select and employ appropriate communication concepts and strategies to enhance oral and written communication in the workplace. CM1.0
24.05 Design, develop and deliver formal and informal presentations using appropriate media to engage and inform diverse audiences. CM5.0
24.06 Develop and interpret tables and charts to support written and oral communications. CM8.0
24.07 Exhibit public relations skills that aid in achieving customer satisfaction. CM10.0

25.0 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;

25.03 Identify and document workplace performance goals and monitor progress toward those goals. PS3.0
25.04 Conduct technical research to gather information necessary for decision-making. PS4.0

26.0 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;

26.03 Use Personal Information Management (PIM) applications to increase workplace efficiency. IT1.0
26.04 Employ technological tools to expedite workflow including word processing, databases, reports, spreadsheets, multimedia presentations, electronic calendar, contacts, email, and internet applications. IT2.0

27.0 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;

27.02 Describe the nature and types of business organizations. SY1.0
27.03 Explain the effect of key organizational systems on performance and quality.
27.04 List and describe quality control systems and/or practices common to the workplace. SY2.0

29.0 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;

29.03 Conduct and participate in meetings to accomplish work tasks. LT4.0
29.04 Employ mentoring skills to inspire and teach others. LT5.0

30.0 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

30.02 Evaluate alternative responses to workplace situations based on personal, professional, ethical, legal responsibilities, and employer policies. ELR1.1
30.03 Identify and explain personal and long-term consequences of unethical or behaviors in the workplace. ELR1.2
30.04 Interpret and explain written organizational policies and procedures. ELR2.0

31.0 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;

31.06 Examine licensing, certification, and industry credentialing requirements. ECD3.0
31.07 Identify and exhibit traits for retaining employment. ECD7.0
31.08 Identify opportunities and research requirements for career advancement. ECD8.0
31.09 Research the benefits of ongoing professional development. ECD9.0

32.0 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

32.04 Complete financial instruments for making deposits and withdrawals. FL3.2
32.05 Maintain financial records. FL3.3
32.06 Read and reconcile financial statements. FL3.4
32.07 Research, compare and contrast investment opportunities.

2012 - 2013

Florida Department of Education
Student Performance Standards

Course Title: **Horticulture Science and Services 4**
Course Number: **8121610**
Course Credit: **1**

Course Description:

This course is designed to further develop competencies in the areas of plant identification and classification; growing media; irrigation system set up; and maintaining and analyzing records including production costs.

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	5/36 14%	**Biology 1**	10/56 18%	**Anatomy/Physiology Honors**	2/53 4%	**Astronomy Solar/Galactic Honors**	#
Algebra 2	#	**Chemistry 1**	1/55 2%	**Genetics**	6/35 17%	**Marine Science 1 Honors**	2/42 5%
Geometry	11/45 24%	**Physics 1**	#	**Earth-Space Science**	#	**Physical Science**	1/56 2%

** *Alignment pending* # *Alignment attempted, but no correlation to academic course.*

13.0 Propagate plants---The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.14.7, 10, 31, 53; SC.912.L.15.4, 5, 6; SC.912.L.16.1, 2, 3, 14, 16, 17; SC.912.L.17.7, MA.912.G.7.5, 7; MA.912.S.3.2;

13.07 Prepare propagation materials (seeds, cuttings, etc.) for planting.
13.08 Demonstrate sanitation and safety practices when propagating.

35.0 Operate, repair, and maintain tools and equipment--The student will be able to:

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

35.05 Identify, operate, and maintain tractor and power equipment.

38.0 Prepare growing media--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.P.8.9, 11; SC.912.L.14.6; SC.912.L.18.11; MA.912.A.3.12, 13, 14, 15; MA.912.A.5.7; MA.912.G.2.5, 7;

38.01 Sterilize rooting, potting, and growing media.
38.02 Adjust pH and nutritional levels of media.
38.03 Fill and level benches and pots with media.
38.04 Demonstrate sanitation practices when handling and storing plant media materials.

39.0 Irrigate plants--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: MA.912.G.1.1, 2; MA.912.G.2.4, 5, 7; MA.912.G.5.1; MA.912.G.6.2, 5, 7; MA.912.C.3.11; SC.912.E.7.1; SC.912.N.1.1

39.01 Design an irrigation system for a propagation area.
39.02 Design an irrigation system for a growing structure.
39.03 Design an irrigation system for a retail display.
39.04 Explain and apply Best Management Practices as they apply to irrigation.

40.0 Maintain and analyze records--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.N.1.1; MA.912.F.5.1; MA.912.S.3.2

40.01 Create a plant and inventory supply list.
40.02 Maintain current plant and supply inventory.
40.03 Maintain job records, daily log sheets, and inventory.
40.04 Calculate labor costs involved with product pricing.

41.0 Apply proper fertilizer application components.—The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: MA.912.S.3.2; MA.912.A.2.1; SC.912.N.1.1, 7; SC.912.N.2.4; SC.912.P.8.11; SC.912.P.12.12;

41.01 Determine proper application based on characteristics of plant species.
41.02 Examine how fertilizer application affects the ecosystem.

2012 - 2013

Florida Department of Education
Student Performance Standards

Course Title: **Horticulture Science and Services 5**
Course Number: **8121620**
Course Credit: **1**

Course Description:

This course is designed to further develop competencies in the areas of identifying and evaluating IPM practices; maintaining and repairing irrigation systems; analyzing and evaluating fertilizer usage.

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	3/36 8%	**Biology 1**	14/56 25%	**Anatomy/Physiology Honors**	2/53 4%	**Astronomy Solar/Galactic Honors**	4/52 8%
Algebra 2	#	**Chemistry 1**	7/55 13%	**Genetics**	7/35 20%	**Marine Science 1 Honors**	7/42 17%
Geometry	#	**Physics 1**	5/53 9%	**Earth-Space Science**	4/58 7%	**Physical Science**	7/56 13%

** *Alignment pending* # *Alignment attempted, but no correlation to academic course.*

12.0 Identify and classify plants--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.14.7, 10, 31, 53; SC.912.L.15.4, 5, 6; SC.912.L.16.1, 2, 3, 14, 16, 17; SC.912.L.17.7; SC.912.N.1.1; SC.912.N.2.4; SC.912.P.12.12; MA.912.A.5.4;

12.09 Identify plants appropriate to a region.
12.10 Classify plants according to growth habit.
12.11 Supply growth stimulants to propagation materials
12.12 Prepare flats and seedbeds and plant seeds.

39.0 Irrigate plants--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.N.1.1; SC.912.N.2.4; MA.912.C.3.11;

39.05 Identify and use various types of irrigation systems (low volume, ebb and flow, drip, mat, re-circulating, etc.).

40.0 Maintain and analyze records--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.N.1.1; SC.912.N.2.4; MA.912.F.5.1;

40.05 Prepare and maintain financial records using computer software.

42.0 Fertilize plant materials--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.17.16; SC.912.N.1.1, 6; SC.912.N.2.4; SC.912.P.8.11; SC.912.P.12.12; MA.912.A.2.1, 4; MA.912.S.3.2;

42.01 Collect soil and leaf tissue samples for analysis.
42.02 Demonstrate proper handling and storage of fertilizers, observing safety precautions.
42.03 Evaluate, operate, and maintain fertilizer distribution equipment.
42.04 Create fertilizer schedule and/ or record of applications.

43.0 Control pests--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.17.13, 15, 16, 17; SC.912.N.1.1, 3, 4; SC.912.N.2.4; MA.912.S.3.2

43.01 Report insect and disease damage.
43.02 Identify chemical spray damage.

2012 - 2013

Florida Department of Education
Student Performance Standards

Course Title: **Horticulture Science and Services 6**
Course Number: **8121630**
Course Credit: **1**

Course Description:

This course is designed to further develop competencies in the areas of irrigation; growing media; planting beds and sites; propagation; marketing; repair and maintenance of nursery equipment and facilities.

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	#	**Biology 1**	5/56 9%	**Anatomy/Physiology Honors**	1/53 2%	**Astronomy Solar/Galactic Honors**	4/52 8%
Algebra 2	#	**Chemistry 1**	7/55 13%	**Genetics**	2/35 6%	**Marine Science 1 Honors**	6/42 14%
Geometry	#	**Physics 1**	5/53 9%	**Earth-Space Science**	4/58 7%	**Physical Science**	7/56 13%

** *Alignment pending* # *Alignment attempted, but no correlation to academic course.*

35.0 Operate, repair, and maintain tools and equipment--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.N.1.1; SC.912.N.2.4; SC.912.P.10.3; SC.912.P.12.3, 4, 5;

35.06 Load, secure, and transport equipment.

39.0 Irrigate plants--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.N.1.1; SC.912.N.2.4; MA.912.C.3.11

39.06 Maintain and repair an irrigation system.
39.07 Assemble a drip/mist irrigation system for an ornamental crop.

40.0 Maintain and analyze records--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.N.1.1; SC.912.N.2.4; MA.912.F.4.1; MA.912.F.5.1

40.06 Analyze and maintain production and sales records.
40.07 Determine plant production costs.
40.08 Prepare a budget.

42.0 Fertilize plant materials--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.17.16; SC.912.N.1.1, 6; SC.912.N.2.4; SC.912.P.8.11; SC.912.P.12.12; MA.912.A.2.1; MA.912.S.3.2

42.05 Interpret and evaluate the results of soil and leaf tissue analysis and determine corrective actions.
42.06 Develop a fertilization schedule for various plant species.
42.07 Calculate rates of fertilizer application for turf, ornamental plants, and palms.

43.0 Control pests--The student will be able to:

This standard supports the following Next Generation Sunshine State Standards: SC.912.L.17.13, 15, 16, 17; SC.912.N.1.1, 3, 4; SC.912.N.2.4; MA.912.S.3.2;

43.03 Select proper IPM practices (biological, chemical and physical) for control of insects, diseases, vertebrates and weeds.
43.04 Evaluate the efficacy and phytotoxicity of a chemical prior to inclusion in a growing program.