Credit-By-Articulation Program

AGRICULTURE Career Pathway
Equivalent Program Certificate Agreement

Farm Worker Certificate of Competence
Landscape Certificate of Competence

Hawai‘i Community College

AND

State of Hawai‘i, Department of Education
Ka‘u High and Pahala Elementary School

August 2021

I. Purpose

The purpose of this Equivalent Program Certificate Agreement is to provide a mechanism that will enable students from the State of Hawai‘i’s Department of Education (DOE) who achieve standards/student learning outcomes equivalencies in courses taken at the high school to receive college credits toward a certificate when they enroll at University of Hawai‘i, Hawai‘i Community College (Hawai‘i CC).

II. Agreements and Procedures

A. **Scope of Agreement**. This Equivalent Program Certificate Agreement is between the State of Hawai‘i’s Department of Education Ka`u High and Pahala Elementary School (KHPES) and University of Hawai‘i, Hawai‘i Community College (Hawai‘i CC). It falls under the UH CTE Dual Credit Articulated Program of Study (DCAPS).

B. **Term of the Agreement**. This Equivalent Program Certificate Agreement will be in effect upon execution and may be terminated with a one-year written notice to all parties.

C. **Review of the Agreement**. This Equivalent Program Certificate Agreement will be subject to an annual review by faculty and other appropriate representatives from Hawai‘i CC and representatives from the DOE to address changes to the Agreement including any curriculum, instructional strategies, assessment protocols, and/or other course changes.

D. **Partnership**. To maintain the equivalency and rigor of the course content and to support students' achievement of course and program learning outcomes (APPENDIX A), DOE teacher and appropriate faculty from Hawai‘i CC will maintain open communication and are required to meet at least twice a semester to discuss curriculum, instruction, student safety and appropriate PPE/attire, formative and summative assignment-based assessments, and any challenges that may arise. DOE will use the Assessment Plans and tools provided by Hawai‘i CC. All students’ summative assignments in the course will be assessed using the Hawai‘i CC Assessment Plan and Rubric (APPENDIX B) by a team consisting of both DOE teachers and appropriate Hawai‘i CC faculty.

The DOE teacher must provide a copy of the course syllabus to Hawai‘i CC for approval. In addition to the requirements of the DOE, the syllabus must include the following:

1. The Hawai‘i CC course learning outcomes with alignments to Hawai‘i CC AG program learning outcomes.
2. Required formative and summative assignments to be used for assessments.
3. Required methods of assessment/grading rubrics.
4. Textbooks and other resources that will be used.

III. Student Application Guidelines for Equivalent Program Certificate Credits

A. **Student Eligibility**. High school students must successfully complete **ALL** of the equivalent DOE courses in the Pathway by passing with a “C” or better, to be eligible for college credit and ultimately the certificate. Student must be enrolled in the appropriate program of study

at Hawai‘i Community College to be eligible for the awarding of equivalent college credit. There will be no additional testing or cost for these credits. (APPENDIX C)

B. **Number of Credits to be Awarded**. APPENDIX C lists the corresponding Hawai‘i CC courses and credits the student may earn through this Agreement.

C. **Credit By Articulation.** Credit by articulation may be granted to a student who has met the established criteria for high school courses deemed equivalent under the agreement. To receive the credit equivalencies, students must apply to Hawai‘i Community College within two (2) years from high school graduation (e.g. students who graduate in June 2022 have until June 2024 to apply for equivalent course credits at Hawai‘i Community College).

When applying for equivalent course credits, DOE shall provide an official high school transcript that shows evidence of course completion with a "C" or higher in the State of Hawai‘i Department of Education course offerings on behalf of students who applied for said credit.

DOE shall also include documentation verifying that they completed the required course assessments (APPENDIX B) with 80% accuracy. Details regarding the equivalent courses and credits are included in APPENDIX C.

Campus representatives (APPENDIX D) are available to assist high school students and teachers with inquiries. The Equivalent Course Agreement form (see APPENDIX E) must be submitted when applying to verify the student's eligibility.

D. **Transferability of Credits**. Credits may not be transferable to programs or UH campuses outside of this Agreement as this decision will be at the discretion of the receiving campus.

E. **Approval Pages.** Approving signatures on following pages.

Hawaii Community College

Name: Melanie Wilson
Title: Interim Vice Chancellor, Hawai‘i Community College

By: _____ Dec 21, 2021
Signature *Date*

Name: Rachel Solemsaas
Title: Chancellor, Hawai‘i Community College

By: _____ Dec 21, 2021
Signature *Date*

Hawai‘i Department of Education

Name: Sharon Beck
Title: Principal, Ka`u High and Pahala Elementary School

By: _____ Dec 22, 2021
Signature *Date*

Name: Chad Keone Farias
Title: Complex Area Superintendent, Ka`u-Kea`au-Pahoa

By: _____ Dec 20, 2021
Signature *Date*

HawaiiCC AGRICULTURE
Farm Worker Certificate of Competence
Learning Outcomes Alignment AY2021-2022

AG PLOs
PLO 1: Plan and manage projects and cultivate horticultural crops using legal; sustainable; safe; and ecologically, biologically, and technologically sound practices.
PLO 2: Design gardens that demonstrate the aesthetic principles of unity, repetition, balance, color, and texture congruent with the customers' desires.
PLO 3: Operate and maintain tools and equipment.
PLO 4: Set-up and manage a business enterprise.
PLO 5: Interact with customers and co-workers in ways that effectively

support the work to be accomplished.

AGRICULTURE COURSES	COURSE LEARNING OUTCOMES (CLOs) AY2021-2022	**PLO 1**: Plan and manage projects and cultivate horticultural crops using legal; sustainable; safe; and ecologically, biologically, and technologically sound practices.	**PLO 2**: Design gardens that demonstrate the aesthetic principles of unity, repetition, balance, color, and texture congruent with the customers' desires.	**PLO 3**: Operate and maintain tools and equipment.	**PLO 4**: Set-up and manage a business enterprise.	**PLO 5**: Interact with customers and co-workers in ways that effectively support the work to be accomplished.
AG 31 - FARM EQUIPMENT, MACHINERY, AND POWER Farm equipment and machinery, their selection, management, principles of operation; testing, adjustment and servicing of gasoline engines, engine components.	"CLO 1: Develop familiarity and demonstrate safe use and maintenance habits with agricultural tractors, implements, and power tools."			PLO 3		
	"CLO 2: Construct or repair structures of wood, metal, and masonry or concrete."			PLO 3		
	"CLO 3: Work with others productively and safely to complete projects."					PLO 5
AG 33 - GREENHOUSE CONSTRUCTION Practice in planning the layout of physical	"CLO 1: Develop familiarity and demonstrate safe use habits with basic tools of construction."			PLO 3		
	"CLO 2: Construct or repair structures and benches of wood, PVC, and conduit."			PLO 3		

facilities common on the farm; practice in the construction and maintenance of small structures.	"CLO 3: Design and layout the production area of a containerized nursery."	PLO 1				
	"CLO 4: Work with other students productively and safely to complete projects."					PLO 5
AG 54A - TROPICAL AGRICULTURE PRODUCTION I An introduction to the culture of various horticultural enterprises commonly grown in Hawai`i during the Fall of each year. The course includes field preparation considerations, propagation, controlling the environment, pest control, fertilization, and marketing. These enterprises include floral, vegetable, fruits, and foliage crops. A “hands-on” approach to crop production will be employed and farm management will be stressed.	"CLO 1: Cultivate horticultural crops using good agricultural practices and commercial production methods as applicable."	PLO 1			PLO 4	
	"CLO 2: Use available tools of production safely and in an ecologically sound manner while increasing productivity and reducing labor."			PLO 3		
	"CLO 3: Plan, manage and rotate crop production based on sound biological and technological principles."	PLO 1				
	"CLO 4: Interact with fellow students and community in ways that supports projects to be accomplished, informs or educates and promotes agriculture positively."					PLO 5
AG 54B - TROPICAL AGRICULTURE PRODUCTION II	"CLO 1: Utilize good agricultural practices and commercial production methods to enhance production and marketing of field crops."				PLO 4	
	"CLO 2: Demonstrate mastery of tools of production while promoting			PLO 3		

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An introduction to various horticultural enterprises, commonly cultivated in Hawai'i during the Spring each year. The course includes field preparation considerations, propagation, controlling the environment, pest control, fertilization, and marketing. The enterprises include floral, vegetable, fruits, and foliage crops. The "hands-on" approach to agriculture production is employed and farm record keeping for farm management is stressed.	environmentally-sound and labor-saving technique."					
	"CLO 3: Create effective crop plans, desirable for technological efficiency and biological health, including rotation schemes."	PLO 1				
	"CLO 4: Actively engage in a positive manner with classmates and community to complete projects and promote agricultural education."					PLO 5

HawaiiCC AGRICULTURE
Landscape Worker Certificate of Competence
Learning Outcomes Alignment AY21-22

AG PLOs
PLO 1: Plan and manage projects and cultivate horticultural crops using legal; sustainable; safe; and ecologically, biologically, and technologically sound practices.
PLO 2: Design gardens that demonstrate the aesthetic principles of unity, repetition, balance, color, and texture congruent with the customers' desires.
PLO 3: Operate and maintain tools and equipment.
PLO 4: Set-up and manage a business enterprise.
PLO 5: Interact with customers and co-workers in ways that effectively

support the work to be accomplished.

AGRICULTURE COURSES	COURSE LEARNING OUTCOMES (CLOs) AY2021-2022	**PLO 1**: Plan and manage projects and cultivate horticultural crops using legal; sustainable; safe; and ecologically, biologically, and technologically sound practices.	**PLO 2**: Design gardens that demonstrate the aesthetic principles of unity, repetition, balance, color, and texture congruent with the customers' desires.	**PLO 3**: Operate and maintain tools and equipment.	**PLO 4**: Set-up and manage a business enterprise.	**PLO 5**: Interact with customers and co-workers in ways that effectively support the work to be accomplished.
AG 31 - FARM EQUIPMENT, MACHINERY, AND POWER Farm equipment and machinery, their selection, management, principles of operation; testing, adjustment and servicing of gasoline engines, engine components.	"CLO 1: Develop familiarity and demonstrate safe use and maintenance habits with agricultural tractors, implements, and power tools."			PLO 3		
	"CLO 2: Construct or repair structures of wood, metal, and masonry or concrete."			PLO 3		
	"CLO 3: Work with others productively and safely to complete projects."					PLO 5

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AG 33 - GREENHOUSE CONSTRUCTION Practice in planning the layout of physical facilities common on the farm; practice in the construction and maintenance of small structures.	"CLO 1: Develop familiarity and demonstrate safe use habits with basic tools of construction."			PLO 3		
	"CLO 2: Construct or repair structures and benches of wood, PVC, and conduit."			PLO 3		
	"CLO 3: Design and layout the production area of a containerized nursery."	PLO 1				
	"CLO 4: Work with other students productively and safely to complete projects."					PLO 5
AG 40 - PLANT IDENTIFICATION Identification of imported and native flora, beneficial and detrimental, and their uses.	"CLO 1: Identify plants and plant families in Hawaii and from around the world by scientific and common names and describe their ecological and aesthetic roles in gardens and the environment."		PLO 2			
	"CLO 2: Develop and demonstrate an understanding and appreciation of plants in context of their cultural, historical, aesthetic, medicinal, nutritional, spiritual, ritualistic and magical uses."		PLO 2			
	"CLO 3: Describe phytomorphological and phytomical characteristics using appropriate terminology."		PLO 2			
	"CLO 4: Collaborate with fellow students in a productive way to complete group projects."					PLO 5

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AG 46 - LANDSCAPE MAINTENANCE An introduction to landscape maintenance and construction. Skills taught include pruning, fertilizing, planting, pest control, reading of a blueprint, and nursery management. The correct use of specific power tools and equipment used in landscape maintenance and construction will be covered. The identification of plants commonly found in the landscape will also be covered.	"CLO 1: Develop familiarity and demonstrate safe use habits with tools of landscape maintenance and pesticide application."			PLO 3		
	"CLO 2: Plan and manage gardens with aesthetic appeal and functional irrigation systems."	PLO 1	PLO 2			
	"CLO 3: Read blue prints, calculate costs, and complete forms for landscaping projects."			PLO 3	PLO 4	PLO 5

HawaiiCC AGRICULTURE
Farm Worker Certificate of Competence
Learning Outcomes Alignment AY2021-2022
With Ka`u HS Course

AG PLOs
PLO 1: Plan and manage projects and cultivate horticultural crops using legal; sustainable; safe; and ecologically, biologically, and technologically sound practices.
PLO 2: Design gardens that demonstrate the aesthetic principles of unity, repetition, balance, color, and texture congruent with the customers' desires.
PLO 3: Operate and maintain tools and equipment.
PLO 4: Set-up and manage a business enterprise.
PLO 5: Interact with customers and co-workers in ways that effectively support the work to be accomplished.

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COURSE LEARNING OUTCOMES (CLOs) AY21-22	HawaiiCC PLO Alignment	Achieved in Ka`u HS Course
AG31 CLO: Develop familiarity and demonstrate safe use and maintenance habits with agricultural tractors, implements, and power tools.	PLO 3	**Natural Resources CORE (TNC6010)** NCO 3.0 Assess and evaluate NR work environments for health and safety. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems. **Integrated Science (SAH2003) & Plant Systems (TNU6242)** NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 4) Model with mathematics
AG31 CLO: Construct or repair structures of wood, metal, and masonry or concrete.	PLO 3	**Natural Resources CORE (TNC6010)** NCO 3.0 Assess and evaluate NR work environments for health and safety. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems. **Integrated Science (SAH2003) & Plant Systems (TNU6242)** NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 4) Model with mathematics
AG 31/AG 33 CLO: Work with others productively and safely to complete projects.	PLO 5	**Natural Resources CORE (TNC6010)** NCO 3.0 Assess and evaluate NR work environments for health and safety.

		NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems. NCO 6.0 Use communication skills to effectively transfer and exchange NR information. NGSS Science Practice 1) Asking questions (for science) and defining problems (for engineering). **Integrated Science (SAH2003) & Plant Systems (TNU6242)** NGSS Science Practice 3) Planning and carrying out investigations. NGSS Science Practice 4) Analyzing and interpreting data. NGSS Science Practice 6) Constructing explanations. NGSS Science Practice 7) Engaging in argument from evidence. NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 3) Construct viable arguments and critiques the reasoning of others. Math Practice 6) Attend to precision.
AG 33 CLO: Develop familiarity and demonstrate safe use habits with basic tools of construction.	PLO 3	**Natural Resources CORE (TNC6010)** NCO 3.0 Assess and evaluate NR work environments for health and safety. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems. **Integrated Science (SAH2003) & Plant Systems (TNU6242)** NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 4) Model with mathematics

AG 33 CLO: Construct or repair structures and benches of wood, PVC, and conduit.	PLO 3	**Natural Resources CORE (TNC6010)** NCO 3.0 Assess and evaluate NR work environments for health and safety. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems. **Integrated Science (SAH2003) & Plant Systems (TNU6242)** NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 4) Model with mathematics
AG 33 CLO: Design and layout the production area of a containerized nursery.	PLO 1	**Natural Resources CORE (TNC6010)** NCO 1.0 Evaluate how NR systems interface to fulfill society's needs. NCO 3.0 Assess and evaluate NR work environments for health and safety. NCO 4.0 Use various documents and resources to analyze legal and ethical considerations in NR. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems. **Integrated Science (SAH2003) & Plant Systems (TNU6242)** NGSS Science Practice 1) Asking questions (for science) and defining problems (for engineering). NGSS Science Practice 3) Planning and carrying out investigations. NGSS Science Practice 4) Analyzing and interpreting data. NGSS Science Practice 5) Using mathematics and computational thinking. NGSS Science Practice 6) Constructing explanations. NGSS Science Practice 7) Engaging in argument from evidence.

		NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **<u>Modeling Our World (MAX1080)</u>** Math Practice 1) Make sense of problems and persevere in solving them. Math Practice 3) Construct viable arguments and critiques the reasoning of others. Math Practice 6) Attend to precision. Math Practice 7) Look and make use of structure.
AG 54A CLO: Cultivate horticultural crops using good agricultural practices and commercial production methods as applicable.	PLO 1 PLO 4	**<u>Natural Resources CORE (TNC6010)</u>** <u>NCO 5.0</u> Generate/create solutions that enhance and/or sustain NR systems. **<u>Natural Resource Production 1 (TNU6133)</u>** <u>NRI 1.0</u> Analyze NR systems and their interactions to balance production and sustainability <u>NRI 2.0</u> Develop and implement management plans that support NR production <u>NRI 3.0</u> Implement solutions that enhance and/or sustain NR production.
AG 54A CLO: Use available tools of production safely and in an ecologically sound manner while increasing productivity and reducing labor.	PLO 3	**<u>Natural Resources CORE (TNC6010)</u>** <u>NCO 3.0</u> Assess and evaluate NR work environments for health and safety. <u>NCO 5.0</u> Generate/create solutions that enhance and/or sustain NR systems. **<u>Natural Resource Production 1 (TNU6133)</u>** <u>NRI 4.0</u> Adhere to NR production regulatory guidelines to maintain safety and health in the work environment.

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AG 54A CLO: Plan, manage and rotate crop production based on sound biological and technological principles.	PLO 1	**Natural Resource Production 1 (TNU6133)** NRI 1.0 Analyze NR systems and their interactions to balance production and sustainability NRI 2.0 Develop and implement management plans that support NR production NRI 3.0 Implement solutions that enhance and/or sustain NR production.
AG 54A CLO: Interact with fellow students and community in ways that supports projects to be accomplished, informs or educates and promotes agriculture positively.”.	PLO 5	**Natural Resource Production 1 (TNU6133)** NRI 2.0 Develop and implement management plans that support NR production
AG 54B CLO: Utilize good agricultural practices and commercial production methods to enhance production and marketing of field crops.	PLO 4	**Natural Resource Production 1 (TNU6133)** NRI 1.0 Analyze NR systems and their interactions to balance production and sustainability NRI 2.0 Develop and implement management plans that support NR production NRI 3.0 Implement solutions that enhance and/or sustain NR production. NRI 5.0 Employ various documents and resources to identify legal and ethical considerations applicable in NR production
AG 54B CLO: Demonstrate mastery of tools of production while promoting environmentally sound and labor-saving techniques.	PLO 3	**Natural Resource Production 1 (TNU6133)** NRI 3.0 Implement solutions that enhance and/or sustain NR production. NRI 4.0 Adhere to NR production regulatory guidelines to maintain safety and health in the work environment.

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AG 54B CLO: Create effective crop plans, desirable for technological efficiency and biological health, including rotation schemes.	PLO 1	**Natural Resource Production 1 (TNU6133)** NRI 1.0 Analyze NR systems and their interactions to balance production and sustainability NRI 2.0 Develop and implement management plans that support NR production NRI 3.0 Implement solutions that enhance and/or sustain NR production.
AG 54B CLO: Actively engage in a positive manner with classmates and community to complete projects and promote agricultural education.	PLO 5	**Natural Resource Production 1 (TNU6133)** NRI 6.0 Interpret, exchange, and transfer information to support NR production.

HawaiiCC AGRICULTURE
Landscape Worker Certificate of Competence
Learning Outcomes Alignment AY21-22
With Ka`u HS Course

AG PLOs
PLO 1: Plan and manage projects and cultivate horticultural crops using legal; sustainable; safe; and ecologically, biologically, and technologically sound practices.
PLO 2: Design gardens that demonstrate the aesthetic principles of unity, repetition, balance, color, and texture congruent with the customers' desires.
PLO 3: Operate and maintain tools and equipment.
PLO 4: Set-up and manage a business enterprise.
PLO 5: Interact with customers and co-workers in ways that effectively support the work to be accomplished.

APPENDIX A.2LW.

COURSE LEARNING OUTCOMES (CLOs) AY21-22	HawaiiCC PLO Alignment	Achieved in Ka`u HS Course
AG31 CLO: Develop familiarity and demonstrate safe use and maintenance habits with agricultural tractors, implements, and power tools.	PLO 3	**Natural Resources CORE (TNC6010)** NCO 3.0 Assess and evaluate NR work environments for health and safety. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems. **Integrated Science (SAH2003) & Plant Systems (TNU6242)** NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 4) Model with mathematics
AG31 CLO: Construct or repair structures of wood, metal, and masonry or concrete.	PLO 3	**Natural Resources CORE (TNC6010)** NCO 3.0 Assess and evaluate NR work environments for health and safety. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems. **Integrated Science (SAH2003) & Plant Systems (TNU6242)** NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 4) Model with mathematics
AG 31/AG 33 CLO: Work with others productively and safely to complete projects.	PLO 5	**Natural Resources CORE (TNC6010)** NCO 3.0 Assess and evaluate NR work environments for health and safety. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems.

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COURSE LEARNING OUTCOMES (CLOs) AY21-22	HawaiiCC PLO Alignment	Achieved in Ka`u HS Course
		NCO 6.0 Use communication skills to effectively transfer and exchange NR information. NGSS Science Practice 1) Asking questions (for science) and defining problems (for engineering). **Integrated Science (SAH2003) & Plant Systems (TNU6242)** NGSS Science Practice 3) Planning and carrying out investigations. NGSS Science Practice 4) Analyzing and interpreting data. NGSS Science Practice 6) Constructing explanations. NGSS Science Practice 7) Engaging in argument from evidence. NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 3) Construct viable arguments and critiques the reasoning of others. Math Practice 6) Attend to precision.
AG 33 CLO: Develop familiarity and demonstrate safe use habits with basic tools of construction.	PLO 3	**Natural Resources CORE (TNC6010)** NCO 3.0 Assess and evaluate NR work environments for health and safety. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems. **Integrated Science (SAH2003) & Plant Systems (TNU6242)** NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 4) Model with mathematics

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COURSE LEARNING OUTCOMES (CLOs) AY21-22	**HawaiiCC PLO Alignment**	**Achieved in Ka`u HS Course**
AG 33 CLO: Construct or repair structures and benches of wood, PVC, and conduit.	PLO 3	**Natural Resources CORE (TNC6010)** NCO 3.0 Assess and evaluate NR work environments for health and safety. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems. **Integrated Science (SAH2003) & Plant Systems (TNU6242)** NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 4) Model with mathematics
AG 33 CLO: Design and layout the production area of a containerized nursery.	PLO 1	**Natural Resources CORE (TNC6010)** NCO 1.0 Evaluate how NR systems interface to fulfill society's needs. NCO 3.0 Assess and evaluate NR work environments for health and safety. NCO 4.0 Use various documents and resources to analyze legal and ethical considerations in NR. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems. **Integrated Science (SAH2003) & Plant Systems (TNU6242)** NGSS Science Practice 1) Asking questions (for science) and defining problems (for engineering). NGSS Science Practice 3) Planning and carrying out investigations. NGSS Science Practice 4) Analyzing and interpreting data. NGSS Science Practice 5) Using mathematics and computational thinking. NGSS Science Practice 6) Constructing explanations.

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COURSE LEARNING OUTCOMES (CLOs) AY21-22	HawaiiCC PLO Alignment	Achieved in Ka`u HS Course
		NGSS Science Practice 7) Engaging in argument from evidence. NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 1) Make sense of problems and persevere in solving them. Math Practice 3) Construct viable arguments and critiques the reasoning of others. Math Practice 6) Attend to precision. Math Practice 7) Look and make use of structure.
AG 40 CLO: Identify plants and plant families in Hawaii and from around the world by scientific and common names and describe their ecological and aesthetic roles in gardens and the environment.	PLO 2	**Natural Resources CORE (TNC6010)** NCO 1.0 Evaluate how NR systems interface to fulfill society's needs. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems. **Integrated Science (SAH2003) & Plant Systems (TNU6242)** NGSS Science Practice 1) Asking questions (for science) and defining problems (for engineering). NGSS Science Practice 2) Developing and using models. NGSS Science Practice 4) Analyzing and interpreting data. NGSS Science Practice 5) Using mathematics and computational thinking. NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 1) Make sense of problems and persevere in solving them. Math Practice 2) Reason abstractly and quantitatively. Math Practice 4) Model with mathematics Math Practice 5) Use appropriate tools strategically

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COURSE LEARNING OUTCOMES (CLOs) AY21-22	HawaiiCC PLO Alignment	Achieved in Ka`u HS Course
		Math Practice 6) Attend to precision. Math Practice 7) Look and make use of structure.
AG 40 CLO: Develop and demonstrate an understanding and appreciation of plants in context of their cultural, historical, aesthetic, medicinal, nutritional, spiritual, ritualistic and magical uses.	PLO 2	**Natural Resources CORE (TNC6010)** NCO 1.0 Evaluate how NR systems interface to fulfill society's needs. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems. **Integrated Science (SAH2003) & Plant Systems (TNU6242)** NGSS Science Practice 1) Asking questions (for science) and defining problems (for engineering). NGSS Science Practice 2) Developing and using models. NGSS Science Practice 4) Analyzing and interpreting data. NGSS Science Practice 5) Using mathematics and computational thinking. NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 1) Make sense of problems and persevere in solving them. Math Practice 2) Reason abstractly and quantitatively. Math Practice 4) Model with mathematics Math Practice 5) Use appropriate tools strategically Math Practice 6) Attend to precision. Math Practice 7) Look and make use of structure.
AG 40 CLO: Describe phytomorphological and phytomical characteristics using appropriate terminology.	PLO 2	**Natural Resources CORE (TNC6010)** NCO 1.0 Evaluate how NR systems interface to fulfill society's needs. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems.

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COURSE LEARNING OUTCOMES (CLOs) AY21-22	HawaiiCC PLO Alignment	Achieved in Ka`u HS Course
		Integrated Science (SAH2003) & Plant Systems (TNU6242) NGSS Science Practice 1) Asking questions (for science) and defining problems (for engineering). NGSS Science Practice 2) Developing and using models. NGSS Science Practice 4) Analyzing and interpreting data. NGSS Science Practice 5) Using mathematics and computational thinking. NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 1) Make sense of problems and persevere in solving them. Math Practice 2) Reason abstractly and quantitatively. Math Practice 4) Model with mathematics Math Practice 5) Use appropriate tools strategically Math Practice 6) Attend to precision. Math Practice 7) Look and make use of structure.
AG 40 CLO: Collaborate with fellow students in a productive way to complete group projects.	PLO 5	**Natural Resources CORE (TNC6010)** NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems. NCO 6.0 Use communication skills to effectively transfer and exchange NR information. **Integrated Science (SAH2003) & Plant Systems (TNU6242)** NGSS Science Practice 1) Asking questions (for science) and defining problems (for engineering). NGSS Science Practice 3) Planning and carrying out investigations. NGSS Science Practice 4) Analyzing and interpreting data. NGSS Science Practice 6) Constructing explanations. NGSS Science Practice 7) Engaging in argument from evidence.

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COURSE LEARNING OUTCOMES (CLOs) AY21-22	HawaiiCC PLO Alignment	Achieved in Ka`u HS Course
		NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 1) Make sense of problems and persevere in solving them. Math Practice 3) Construct viable arguments and critiques the reasoning of others. Math Practice 6) Attend to precision.
AG 46 CLO: Develop familiarity and demonstrate safe use habits with tools of landscape maintenance and pesticide application.	PLO 3	**Natural Resources CORE (TNC6010)** NCO 3.0 Assess and evaluate NR work environments for health and safety. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems. **Integrated Science (SAH2003) & Plant Systems (TNU6242)** NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 4) Model with mathematics
AG 46 CLO: Plan and manage gardens with aesthetic appeal and functional irrigation systems.	PLO 1 PLO 2	**Natural Resources CORE (TNC6010)** NCO 1.0 Evaluate how NR systems interface to fulfill society's needs. NCO 3.0 Assess and evaluate NR work environments for health and safety. NCO 4.0 Use various documents and resources to analyze legal and ethical considerations in NR. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems.

APPENDIX A.2LW.

COURSE LEARNING OUTCOMES (CLOs) AY21-22	HawaiiCC PLO Alignment	Achieved in Ka`u HS Course
		Integrated Science (SAH2003) & Plant Systems (TNU6242) NGSS Science Practice 1) Asking questions (for science) and defining problems (for engineering). NGSS Science Practice 2) Developing and using models. NGSS Science Practice 3) Planning and carrying out investigations. NGSS Science Practice 4) Analyzing and interpreting data. NGSS Science Practice 5) Using mathematics and computational thinking. NGSS Science Practice 6) Constructing explanations. NGSS Science Practice 7) Engaging in argument from evidence. NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **Modeling Our World (MAX1080)** Math Practice 1) Make sense of problems and persevere in solving them. Math Practice 2) Reason abstractly and quantitatively. Math Practice 3) Construct viable arguments and critiques the reasoning of others. Math Practice 4) Model with mathematics Math Practice 6) Attend to precision. Math Practice 7) Look and make use of structure.
AG 46 CLO: Read blue prints, calculate costs, and complete forms for landscaping projects.	PLO 3 PLO 4 PLO 5	**Natural Resources CORE (TNC6010)** NCO 3.0 Assess and evaluate NR work environments for health and safety. NCO 4.0 Use various documents and resources to analyze legal and ethical considerations in NR. NCO 5.0 Generate/create solutions that enhance and/or sustain NR systems. NCO 6.0 Use communication skills to effectively transfer and exchange NR information.

APPENDIX A.2LW.

COURSE LEARNING OUTCOMES (CLOs) AY21-22	HawaiiCC PLO Alignment	Achieved in Ka`u HS Course
		<u>Integrated Science (SAH2003) & Plant Systems (TNU6242)</u> NGSS Science Practice 1) Asking questions (for science) and defining problems (for engineering). NGSS Science Practice 3) Planning and carrying out investigations. NGSS Science Practice 4) Analyzing and interpreting data. NGSS Science Practice 5) Using mathematics and computational thinking. NGSS Science Practice 6) Constructing explanations. NGSS Science Practice 7) Engaging in argument from evidence. NGSS Science Practice 8) Obtaining, evaluating, and communicating information. **<u>Modeling Our World (MAX1080)</u>** Math Practice 1) Make sense of problems and persevere in solving them. Math Practice 2) Reason abstractly and quantitatively. Math Practice 3) Construct viable arguments and critiques the reasoning of others. Math Practice 4) Model with mathematics Math Practice 6) Attend to precision.

APPENDIX B.1.

AG 31 - Farm Equipment, Machinery, and Power

Assessment PLAN: all students are to be assessed and the instructor and course staff will conduct the assessment using the assignment rubrics.

Summative Student Assignments to be Assessed:
Follow a maintenance checklist and inspect and operate a tractor; and
Ability to repair a wooden bench

CLOs assessed: CLOs: 1 and 3: Follow a maintenance checklist and inspect and operate a tractor.

Every student is to be assessed individually by the instructor in their ability to follow a maintenance checklist and inspect and operate a tractor. The goal was set to be that 80% of the students were expected to meet or exceed the standard of 75% of the points on the rubric.

CLOs assessed: CLOs: 1, 2, and 3: Ability to repair a wooden bench

Every student is to be assessed individually by the instructor in their ability to repair a wooden bench. This assessment involves the use of power tools, and the safe use of the equipment is to be stressed. The goal was set to be that 80% of the students were expected to meet or exceed the standard of 75% of the points on the rubric.

AG 31 - FARM EQUIPMENT, MACHINERY, AND POWER	"CLO 1: Develop familiarity and demonstrate safe use and maintenance habits with agricultural tractors, implements, and power tools."	PLO 3
	"CLO 2: Construct or repair structures of wood, metal, and masonry or concrete."	PLO 3
	"CLO 3: Work with others productively and safely to complete projects."	PLO 5

APPENDIX B.1.a

AG 31 - Farm Equip., Machinery & Power

Tractor/Power Tool rubric

SKILL BEING ASSESSED	EXCEEDS 15 pts	MEETS PROFICIENCY 10 pts	DEVELOPING PROFICIENCY 5 pts
Overall 5 pt. tractor maintenance inspection. CLO:1	Student is able to complete a 5 pt. tractor inspection independently, efficiently and according to the manufacturer's specifications and the instructor's task-list with 100% accuracy.	Student is able to complete a 5 pt. tractor inspection independently and according to the manufacturer's specifications and the instructor's task-list with 75% or better accuracy.	With assistance from the instructor, the student is able to complete a 5 pt. tractor inspection according to the manufacturer's specifications and the instructor's task-list with at least 75% accuracy.
Collaboration, safety, ability to find specifications, and follow directions. CLO:3	Student safely collaborates with other students to efficiently complete a tractor maintenance and inspection according to proper manufacturing specifications with zero errors.	Student safely collaborates with other students to complete a tractor/chainsaw maintenance and inspection according to proper manufacturing specifications with 75% or higher accuracy.	Student safely collaborates with other students to complete a tractor/chainsaw maintenance and inspection according to proper manufacturing specifications with minimal help from the instructor and with at least 75% accuracy.
Tractor adjustments, hitches and operation CLO: 1	Student adjusts tractor for safety uses, conducts pre-hitching, and safe connections with no errors. Student secures, connects and double checks PTO and other linkages and avoids injury-incident situations while operating tractor at all times with no mistakes.	Student adjusts tractor for safety uses, conducts pre-hitching, and safe connections with at least 75% accuracy but is able to self-correct 100% of the time. Student secures, connects and double checks PTO and other linkages and avoids injury-incident situations while operating tractor with at least 75% accuracy, and is able to self-correct with minimal assistance from the instructor.	Student adjusts tractor for safety uses, conducts pre-hitching, and safe connections with at least 75% accuracy with help from the instructor to correct mistakes. Student secures, connects and double checks PTO and other linkages and avoids injury-incident situations while operating tractor with at least 75% accuracy, and is able to correct with assistance from the instructor.

APPENDIX B.1.b.

AG 31 - Farm Equip., Machinery & Power

Repair a Wooden Bench RUBRIC

Student:_____Evaluator:_____

Student Signature:_____Date:_____

SKILL BEING ASSESSED	EXCEEDS EXPECTATIONS (15 pts)	MEETS PROFICIENCY (10 pts)	DEVELOPING PROFICIENCY (5 pts)
Accurate assessment of repairs needed and proper tool selection and use of tools for particular repair CLO: 1	Student independently assesses damage to wooden bench and determines what repairs are necessary, the proper tools are chosen, and the student demonstrates proper and safe tool use with 100% accuracy. .	Student independently assesses damage to wooden bench and determines what repairs are necessary, the proper tools are chosen, and the student demonstrates proper and safe tool use with at least 75% accuracy.	Student assesses damage to wooden bench and determines what repairs are necessary and what tools are needed with help from the instructor with 75% accuracy. The student demonstrates proper and safe tool use with 75% accuracy and little help from instructor.
Response to supervision and communication and safety CLO: 3	Student is always dressed in proper PPE, is willing to learn and accept feedback, eagerly follows through, listens to others, asks questions and/or makes appropriate suggestions.	Student is dressed in proper PPE, is willing to learn and accept feedback, eagerly follows through, listens to others, asks questions and/or makes appropriate suggestions 75% of the time or more	With reminders from the instructor, student is dressed in proper PPE, is willing to learn and accept feedback, eagerly follows through, listens to others, asks questions and/or makes appropriate suggestions 75% of the time or more
Craftsmanship: Over all, repairs executed efficiently, and adequately CLOs: 2	Repairs are made accurately and to detailed standards, the student uses class time effectively throughout the entire project and the finished product is desirable and aesthetic.	Repairs are made accurately and the student uses class time effectively 75% of the time or better, the finished project is to detailed standards and at least 75% accurate, and the repairs are aesthetically pleasing	With assistance from the instructor, repairs are made accurately and the student uses class time effectively 75% of the time or better, the finished product is to detailed standards and at least 75% accurate.

APPENDIX B.2.

AG 33 - Greenhouse Construction _ Assessment PLAN

Assessment PLAN: all students are to be assessed and the instructor and course staff will conduct the assessment using the assignment rubrics.

Summative Student Assignments to be Assessed: **Dumpy Level and PVC Irrigation**

CLOs assessed: 1, 3, and 4: Dumpy Level

Dumpy Level test assessments is scored using the rubric for CLOs 1, 3, and 4. The dumpy level test is fundamental to constructing a greenhouse and one of the most important skill in constructing a greenhouse. The goal was set to be that 80% of the students were expected to meet or exceed the standard of 75% or 45 out of 60 points. All students should be assessed on accuracy and skill level of three artefacts:

1. Shooting the level
2. Skill of holding the rod
3. Record keeping
4. The student is also assessed on the ability to do peer evaluation.

The instructor assesses every student on these 4 main skills and calculates the results, finding how many of the students meet the bench mark.

CLOs assessed: 1,2 and 4: PVC Irrigation

In the assessment of the "install of PVC garden irrigation", the goal was set to be 80% of the students were expected to meet or exceed the standard of 75% or 45 out of 60 points. The students are scored on 3 different skills using the rubric. All 16 students should be assessed on accuracy and skill level of three artefacts:

1. Layout
2. Measure and cutting
3. Assembly
4. The student is also assessed on their ability to do a test run.

The instructor assesses every student on these 4 main skills and calculates the results, finding how many of the students meet the bench mark.

AG 33 - GREENHOUSE CONSTRUCTION	"CLO 1: Develop familiarity and demonstrate safe use habits with basic tools of construction."	PLO 3
	"CLO 2: Construct or repair structures and benches of wood, PVC, and conduit."	PLO 3
	"CLO 3: Design and layout the production area of a containerized nursery."	PLO 1
	"CLO 4: Work with other students productively and safely to complete projects."	PLO 5

APPENDIX B.2.

APPENDIX B.2.a.

	EXCEEDS PROFICIENCY EXPECTATIONS (15 pts)	MEETS PROFICIENCY (10 pts)	DEVELOPING PROFICIENCY (5 pts)
Rod Holder CLOs: 1,3	Student holds the rod straight and accurate 100% of the time.	Student holds the rod straight and accurate 75% of the time or better.	Student holds the rod straight and accurate with minimal assistance from the instructor and/or classmates at least 75% of the time.
Shooter CLOs: 1,3	During practical session, student demonstrates ability to hit 3 out of 3 accuracy test. .	During practical session, student demonstrates ability to hit 2 out of 3 accuracy test.	During practical session, student demonstrates ability to hit 1 out of 3 accuracy test.
Recorder CLOs: 3	Student takes accurate notes 100% of the time.	Student takes accurate notes with 75% accuracy or better.	Student is able to takes accurate notes with assistance from instructor and/or classmates with at least 75% accuracy.
Evaluation CLOs: 1,3,4	Student has excellent coordination with classmates, ensures a safe environment and is able to verify accuracy of a level at all times.	Student has coordination with classmates, ensures a safe environment and is able to verify accuracy of a level 75% of the time or more.	Student has coordination with classmates, ensures a safe environment and is able to verify accuracy of a level at least 75% of the time with minimal assistance from the instructor.

AG 33 Greenhouse Construction

Use/care of a Dumpy Level RUBRIC

Student:_____ Evaluator:_____

Student Signature:_____Date:_____

APPENDIX B.2.b.

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SKILL BEING ASSESSED	EXCEEDS EXPECTATION (15 pts.)	MEETS PROFICIENCY (10 pts.)	DEVELOPING PROFICIENCY (5 pts)	
Layout CLO: 1,2	Student independently draws and plans the proper PVC irrigation system for a garden with 100% accuracy.	Student independently draws and plans the proper PVC irrigation system for a garden with 75% accuracy or better.	Student draws and plans the proper PVC irrigation system for a garden with 75% accuracy and with little help from the instructor.	
Measure and cutting CLO: 1,2	Student properly measures and cuts PVC pipe with 100% accuracy.	Student properly measures and cuts PVC pipe with 75% accuracy or better.	Student properly measure and cuts PVC pipe and the appropriate fittings with 75% accuracy and with little help from the instructor.	
Assemble CLO: 1,2,4	Student communicates with classmates and is able to safely and correctly assemble and glue relevant PVC pipe and fittings to install an irrigation system with 100% accuracy.	Student communicates with classmates and is able to safely and correctly assemble and glue relevant PVC pipe and fittings to install an irrigation system with 75% accuracy or better.	Student communicates with classmates and is able to safely and correctly assemble and glue relevant PVC pipe and fittings to install an irrigation system with 75% accuracy and with little help from the instructor.	
Test and Run CLO: 1,2,4	Student communicates with classmates and is able to safely test run the completed irrigation system with 100% accuracy	Student communicates with classmates and is able to safely test run the completed PVC irrigation system with 75% accuracy or better.	Student communicates with classmates and is able to safely test run the completed irrigation system with 75% accuracy and with little help from the instructor.	

AG 33 Greenhouse Construction

Install PVC Garden Irrigation RUBRIC

Student:_____ Evaluator:_____

APPENDIX B.2.b.

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Student Signature:_____ Date:_____

AG 40 – Plant Identification_ Assessment PLAN

Assessment PLAN: all students are to be assessed and the instructor and course staff will conduct the assessments using the course rubric. Every student will be expected to become familiar with 100 different plants. The correct spelling is required on all written exams. Students will be expected to collaborate with fellow students in a productive way to learn these 100 plants and prepare their oral presentation.

Summative Student Assignments to be Assessed: Final Exam and Oral Presentation

CLO assessed: 1: Final Exam

At the end of the semester, the students will be given a summative final exam on assigned plants. This final exam will require students to identify 20 of the assigned 100 plants by their scientific and common names, from a selection of slides shown during the exam by the instructor. Each slide is shown for the same amount of time.
The instructor expects that 80% of the students will meet the benchmark of 75% on the exam rubric.

CLOs assessed: 2, 3, and 4: Oral Presentation

Each student will prepare and give an oral presentation to the class that will demonstrate the student's understanding about a selected plant's cultural, historical, aesthetic, and various other uses, and will describe the plant's structures.
The instructor expects that 80% of the students will meet the benchmark of 75% on the exam rubric.

NOTES: This is the only class in the AG Program that has limited "hands-on" learning. Most of the learning is by Powerpoint slides with a lecture, along with guest lecturers and a field trip to Imiloa Astronomy Center, which has an extensive collection of Hawaiian plants. There also are numerous plants on the HawCC farm that can be brought to the students' attention. Plants that are currently used in the industry should be used in the slide presentations and lectures, as well as in the final exam. By learning these 100 plants, it will help with the AG 46, the Landscape class. More importantly, the students will be able to communicate with industry about each covered plant.

AG 40 – PLANT IDENTIFICATION	"CLO 1: Identify plants and plant families in Hawaii and from around the world by scientific and common names and	PLO 2

APPENDIX B.3.

	describe their ecological and aesthetic roles in gardens and the environment."	
	"CLO 2: Develop and demonstrate an understanding and appreciation of plants in context of their cultural, historical, aesthetic, medicinal, nutritional, spiritual, ritualistic and magical uses."	PLO 2
	"CLO 3: Describe phytomorphological and phytomical characteristics using appropriate terminology."	PLO 2
	"CLO 4: Collaborate with fellow students in a productive way to complete group projects."	PLO 5

APPENDIX B.3.a1.

Fall 2019 Ag 40 Plant Identification FINAL

Name_____ **Date**_____

Scientific Name Common Name

1._____

2._____

3._____

4._____

5._____

6._____

7._____

8._____

9._____

10._____

11._____

12._____

13._____

14._____

15._____

16._____

17._____

18._____

19._____

20._____

BONUS_____

APPENDIX B.3.a2

SKILL BEING ASSESSED	EXCEEDS EXPECTATIONS (20 pts)	MEETS PROFICIENCY (15 pts)	DEVELOPING PROFICIENCY (10 pts)
Identify plants with common and scientific names CLO: 1	The student will correctly identify plants common and scientific names	The student will identify plants common and scientific names and is at least 75% accurate with minimal modifications needed.	With the help of the instructor, the student will identify plants common and scientific names and is 75% accurate with modifications.
Understanding and appreciation of plants in context of their cultural, historical, aesthetic and describing their plant structures CLOs: 2,3,4	Each student will give an extensive oral presentation about the plants cultural, historical, aesthetic, etc. and describing their plant structures.	Each student will give an oral presentation about the plants cultural, historical, aesthetic value, etc. and describing their plant structures. The oral presentation is at least 75% correct with minimal modifications.	With the help of the instructor, each student will give an oral presentation about the plants cultural, historical, aesthetic value, etc. and describing their plant structures. The oral presentation is at least 75% correct with modifications.

AG 40 Plant Identification RUBRIC

Student:_____ Evaluator:_____

Student Signature:_____Date:_____

APPENDIX B.4.

AG 46 – Landscape Maintenance _ Assessment PLAN

Assessment PLAN: Every student will be assessed by the instructor at the end of the semester. A rubric scoring system will assess the learning outcomes. Each student will be assessed on demonstrating good tool safety habits and pesticide application; plan and manage beautiful gardens with working irrigation systems; and read blue prints, calculate costs, and complete forms for landscaping projects.
It is our plan that 80% of the students will meet or exceeds scores of 75% in using a saw/chainsaw, plan and create gardens with functional irrigation, and landscaping the grounds of the model home.

Summative Student Assignments to be Assessed: Pruning, Raised Beds (Model Home)

CLO assessed: 1: The students will prune Macadamia trees using either a saw or chainsaw to effectively promote good plant health and increase production. Each student should be well acquainted and use excellent safety habits using the tools.
The students will prune Macadamia trees using either a saw or chainsaw to effectively promote good plant health and increase production. Each student should be well acquainted and use excellent safety habits using the tools.

CLOs assessed: **2:** Each student will plan and manage an aesthetically pleasing garden using raised beds. They will also plan and install an effective irrigation system for the garden

CLOs assessed: 1 and 3: The students will actively landscape the Carpentry Program's "foundation-to-finish" Model Home. Each student will be able to read blueprints, calculate costs and complete forms for landscape projects

AG 46 – Landscape Maintenance	"CLO 1: Develop familiarity and demonstrate safe use habits with tools of landscape maintenance and pesticide application."	PLO 3
	"CLO 2: Plan and manage gardens with aesthetic appeal and functional irrigation systems."	PLOs 1, 2
	"CLO 3: Read blue prints, calculate costs, and complete forms for landscaping projects."	PLOs 3, 4, 5

APPENDIX B.4.a.

SKILL BEING ASSESSED	EXCEEDS EXPECTATIONS (15 pts)	MEETS PROFICIENCY (10 pts)	DEVELOPING PROFICIENCY (5 pts)
Demonstrate safe and proper tool habits. CLO: 1	The student properly uses saw/chainsaw with extreme safety and picks the appropriate tools for the project all the time. The student is always PPE compliant. The student consistently follows direction and communicates very well with fellow students.	The student properly uses saw/chainsaw safely and picks the appropriate tools for the project. The student is PPE compliant. The student follows direction and communicates with fellow students. The above attributes are preformed at least 75% of the time.	The student properly uses saw/chainsaw safely and picks the appropriate tools for the project. The student is PPE compliant. The student follows direction and communicates with fellow students. The above attributes are preformed at least 75% of the time with help from the instructor.
Properly prune trees to encourage plant production and health. CLO: 1	The student independently makes minimal amounts of cuts to minimize damage to the tree. This encourages optimum plant production and health.	The student makes minimal amounts of cuts to minimize damage to the tree. This encourages optimum plant production and health. This is done at least 75% of the time.	The student makes minimal amounts of cuts to minimize damage to the tree. This encourages optimum plant production and health. This done at least 75% of the time with help from the instructor.
Know how to safely and correctly apply pesticides CLO: 1	The student always uses a back pack sprayer safely and correctly. They apply pesticides according to the label and always PPE compliant. The student consistently follows the directions according to the label.	The student uses a back pack sprayer safely and correctly. They apply pesticides safely and PPE compliant. The student follows the directions according to the label. This is done at least 75% of the time.	The student uses a back pack sprayer safely and correctly. They apply pesticides safely and PPE compliant. The student follows the directions according to the label. This is done at least 75% of the time with help from the instructor.

AG 46 - Landscape Maintenance - Pruning RUBRIC

Student:_____ Evaluator:_____

Student Signature:_____Date:_____

APPENDIX B.4.b

SKILL BEING ASSESSED	EXCEEDS EXPECTATIONS (15 pts)	MEETS PROFICIENCY (10 pts)	DEVELOPING PROFICIENCY (5 pts)
Create plans for landscape garden design. CLO: 2	The student will create plans for an aesthetically pleasing landscape design. The design will incorporate strategically placed plants that are pleasing to the eye and allow for easy access for pruning and upkeep. Because overall upkeep is considered in the design, the landscape garden can be efficiently managed and upkeep kept to a minimal. The design is flawless and 100% accurate so that no changes are necessary.	The student will create plans for an aesthetically pleasing landscape design. The design will incorporate strategically placed plants that are pleasing to the eye and allow for easy access for pruning and upkeep. Because overall upkeep is considered in the design, the landscape garden can be efficiently managed and upkeep kept to a minimal. The design is nice with minimal changes.	The student will create plans for an aesthetically pleasing landscape design. The design will incorporate strategically placed plants that are pleasing to the eye and allow for easy access for pruning and upkeep. Because overall upkeep is considered in the design, the landscape garden can be efficiently managed and upkeep kept to a minimal. The design is nice with minimal changes with help from the instructor.
Plan installation of a functional irrigation system. CLO: 2	The student will design an irrigation system for their previously laid-out landscape design. The design will incorporate irrigation that can be managed efficiently and will keep water management to a minimal.	The student will design an irrigation system for their previously laid-out landscape design. The design will incorporate irrigation that can be managed efficiently and will keep water management to a minimal. This is done 75% of the time or better.	The student will design an irrigation system for their previously laid-out landscape design. The design will incorporate irrigation that can be managed efficiently and will keep water management to a minimal. This is done 75% of the time or better with the help of the instructor.
Quality of student work CLO: 2	The student work is turned in on or before the deadline. The plans are neat, easy to read, and 100% accurate. The student followed instructor's directions so that all of the assigned items are present in the design of the plans.	The student work is turned in on or before the deadline. The plans are neat, easy to read, and accurate. The student followed instructor's directions so that all of the assigned items are present in the design of the plans. This is done 75% of the time or better.	The student work is turned in on or before the deadline. The plans are neat, easy to read, and accurate. The student followed instructor's directions so that all of the assigned items are present in the design of the plans. This is done 75% of the time with the help of the instructor.

AG 46 - Landscape Maintenance - Garden and Irrigation RUBRIC

Student:_____ Evaluator:_____

Student Signature:_____Date:_____

APPENDIX B.4.c.

SKILL BEING ASSESSED	EXCEEDS EXPECTATIONS (15 pts)	MEETS PROFICIENCY (10 pts)	DEVELOPING PROFICIENCY (5 pts)
Read blueprints. CLO: 3	The student will be able to read a 2 dimensional blueprint properly for landscaping projects. The student will decipher what type of plants are used and where they will be located all the time.	The student will be able to read a 2 dimensional blueprint for landscaping projects. The student will decipher what type of plants are used and where they will be located. This will be done at least 75% of the time.	The student will be able to read a 2 dimensional blueprint for landscaping projects. The student will decipher what type of plants are used and where they will be located. This will be done at least 75% of the time with the instructor help.
Calculate costs. CLO: 3	The student will calculate, list detailed costs and follow the landscape budget very precisely.	The student will calculate, list costs and follow the landscape budget. This will be done at least 75% of the time.	The student will calculate costs and follow the landscape budget. This will be done at least 75% of the time with the help from the instructor.
Complete forms for landscaping projects. CLO: 3	The student will complete a detailed landscaping work order forms accurately and completely.	The student will complete a landscaping work order forms. This will be done at least 75% of the time.	The student will complete a landscaping work order forms. This will be done at least 75% of the time with help from the instructor.

AG 46 - Landscape Maintenance -- Blue-prints, costs, forms RUBRIC

Student:_____ Evaluator:_____

Student Signature:_____Date:_____

APPENDIX B.5.

AG 54A - Tropical Agriculture Production _ Assessment PLAN

Assessment PLAN: 1) Every student will be assessed on their soft-skills/employability; and 2) Every student will be assessed on their ability to create, manage and cultivate a rotating crop production plan of poinsettias.
It is hoped that in assessing the soft-skills of the students, that the instructor finds that 80% of the students will meet expectations with scores above 75%. The scoring guide that we will use for the assessment of the students' soft-skills was chosen because of the importance of these skills upon completion of the certificate/degree in order for the students to find employment. In discussing these skills with the Advisory Council, we confirmed the importance of these skills and the students' over-all attitudes as a crucial part to becoming successful in whatever route they pursue in their Agricultural endeavors. It is hoped that in assessing the rotating crop production plan created and carried out by the students, that the instructor finds that 80% of the students will meet expectations with scores above 75%. The Poinsettia rotating crop plan/project was chosen because of its seasonality, the length of time of the project and the relevance to student learning outcomes.

Summative Student Assignments to be Assessed: Poinsettia production and soft skills (Field Report, Instructor rubric)

CLOs assessed: 2, 4: Soft-skills/employability. The instructor will evaluate each student at the end of the semester using a rubric. This assessment was chosen because of the importance of these skills upon completion of the certificate/degree. It is necessary that the students have the right attitudes, they are motivated, they are able to communicate and work as a team and they are professional (soft-skills) in order to gain employment in their field.

CLOs assessed: **1, 2, 3, 4: :** Every student will be assessed on their ability to create, manage and cultivate a rotating crop production plan of poinsettias. Although, this assessment is ongoing throughout the semester, the instructor will use a rubric to assess each student at the end of the semester when the project is complete.

AG 54A - TROPICAL AGRICULTURE PRODUCTION I	"CLO 1: Cultivate horticultural crops using good agricultural practices and commercial production methods as applicable."	PLOs 1, 4
	"CLO 2: Use available tools of production safely and in an ecologically sound manner while increasing productivity and reducing labor."	PLO 3

APPENDIX B.5.

	"CLO 3: Plan, manage and rotate crop production based on sound biological and technological principles."	PLO 1
	"CLO 4: Interact with fellow students and community in ways that supports projects to be accomplished, informs or educates and promotes agriculture positively."	PLO 5

APPENDIX B.5.a.

SKILL BEING ASSESSED	EXCEEDS EXPECTATIONS (15 pts)	MEETS PROFICIENCY (10 pts)	DEVELOPING PROFICIENCY (5 pts)
Response to supervision, communication and teamwork CLO: 4	Student always listens to and follows instructions carefully, accepts feedback and/or constructive criticism and is able to ask questions and make appropriate suggestions if necessary.	Student listens to and follows instructions carefully and accepts feedback and/or constructive criticism and is able to ask questions and make appropriate suggestions if necessary 75% of the time or more.	Student listens to and follows instructions and accepts feedback and/or constructive criticism with minimal reminders from the instructor, and is able to ask questions and make appropriate suggestions if necessary at least 75% of the time.
Initiative, motivation, organization CLO: 2	Student is highly observant, self-motivated, stays on task through-out an entire project and keeps tools and materials organized at all times.	Student is observant, self-motivated, stays on task and keeps tools and materials organized 75% of the time or better.	Student is usually observant, and with reminders from instructor, stays on task and keeps tools and materials organized at least 75% of the time..
Attendance, safety attire and professional conduct CLOs: 4	Professional demeanor is observed at all times, student is always on time and stays through clean-up, is in appropriate PPE for project and ready to start work immediately.	Professional demeanor is observed, student is on time and stays through clean-up, is in appropriate PPE for project and ready to start work 75% of the time or more.	Professional demeanor is usually observed, student is mostly on time and stays through clean-up, and with minimal reminders from instructor, is in the appropriate PPE for project and ready to start work at least 75% of the time.

AG 54a - Tropical Ag Production I - Soft Skills RUBRIC

Student:_____ Evaluator:_____

Student Signature:_____Date:_____

APPENDIX B.5.b

SKILL BEING ASSESSED	EXCEEDS EXPECTATIONS (15 pts)	MEETS PROFICIENCY (10 pts)	DEVELOPING PROFICIENCY (5 pts)
An accurate crop production plan is created. CLO: 3	Student independently creates a rotating crop production plan that is sound and appropriate to the particular plant variety chosen; plan has no errors or modifications necessary.	Student creates a rotating crop production plan that is appropriate to the particular plant variety chosen and is at least 75% accurate with minimal modifications needed.	With the help of the instructor, the student creates a rotating crop production plan that is appropriate to the particular plant variety chosen and is 75% accurate with modifications made.
Demonstration of proper management of the rotating crop production plan approved by the instructor CLO: 2,3,4	Student demonstrates proper management techniques and carries out the rotating crop production plan by overseeing the daily tasks, choosing the most efficient tools, and interacting with fellow classmates in a positive and communicative manner.	Student demonstrates proper management techniques and carries out the rotating crop production plan by overseeing the daily tasks, choosing the most efficient tools, and interacting with fellow classmates in a positive and communicative manner 75% of the time or more.	Student demonstrates proper management techniques and carries out the rotating crop production plan by overseeing the daily tasks, choosing the most efficient tools, and interacting with fellow classmates in a positive and communicative manner with minimal reminders from instructor at least 75% of the time,
Crop cultivation CLOs: 1,4	Student is always self-motivated and enthusiastically assists in the organization and execution of the cultivation of the crops, collaborating with fellow classmates and choosing the most efficient and safe tools/machinery for the project.	Student is self-motivated and enthusiastically assists in the organization and execution of the cultivation of the crops, collaborating with fellow classmates and choosing the most efficient and safe tools/machinery for the project 75% of the time or more.	Student assists in the organization and execution of the cultivation of the crops, collaborating with fellow classmates and choosing the most efficient and safe tools/machinery for the project with minimal reminders from the instructor at least 75% of the time.

AG 54a - Tropical Ag Production I - Horticulture Cultivation RUBRIC

Student:_____ Evaluator:_____

Student Signature:_____Date:_____

APPENDIX B.6.

AG 54B - Tropical Agriculture Production II _ Assessment PLAN

Assessment PLAN: The students will be assessed through hands-on skill demonstration during the production and marketing of potted peppers and tomatoes. Students will take part in all aspects of propagation, irrigation and bench setup, transplanting, fertilization, integrated pest management, pruning and training, and finally marketing and sales.
Every step of this process will be assessed as the plants grow and the various elements of the project preset themselves. The instructor will assess each student individually according to a rubric for technical skills as well as a separate rubric for soft skills.

The assessment method was determined based on the hands-on nature of the course and the inherent nature of the skills and techniques involved. Growing potted peppers and tomatoes is a perfect crop to grow during the spring semester. The crops cycle fits the start to finish of the student's semester. It also suitable with the crops affection for longer daylight and warmer temperatures. It gives students time to acquire the technical skills on how to propagate, setup benches, media and fertilizer preparation, transplanting, integrated pest management, pruning and training, and the all-important marketing and sales areas.

Summative Student Assignments to be Assessed: Potted Pepper/Tomato Project

CLOs assessed: **1, 2, 3, 4:** Students will demonstrate basic agricultural practices and production techniques through hands on involvement in the production of potted peppers and tomatoes. Students will demonstrated mastery of a variety of small tools and equipment including nursery tools, irrigation equipment, and pruning tools. This will be assessed in the technical skills rubrics and the soft skills rubric.

AG 54B - TROPICAL AGRICULTURE PRODUCTION II	"CLO 1: Utilize good agricultural practices and commercial production methods to enhance production and marketing of field crops."	PLO 4
	"CLO 2: Demonstrate mastery of tools of production while promoting environmentally-sound and labor-saving technique."	PLO 3
	"CLO 3: Create effective crop plans, desirable for technological efficiency and biological health, including rotation schemes."	PLO 1
	"CLO 4: Actively engage in a positive manner with classmates and community to complete projects and promote agricultural education."	PLO 5

APPENDIX B.6.a.

SKILL BEING ASSESSED	EXCEEDS EXPECTATIONS (15 pts)	MEETS PROFICIENCY (10 pts)	DEVELOPING PROFICIENCY (5 pts)
Response to supervision, communication and teamwork CLO: 4	Student always listens to and follows instructions carefully, accepts feedback and/or constructive criticism and is able to ask questions and make appropriate suggestions if necessary.	Student listens to and follows instructions carefully and accepts feedback and/or constructive criticism and is able to ask questions and make appropriate suggestions if necessary 75% of the time or more.	Student listens to and follows instructions and accepts feedback and/or constructive criticism with minimal reminders from the instructor, and is able to ask questions and make appropriate suggestions if necessary at least 75% of the time.
Initiative, motivation, organization CLO: 4	Student is highly observant, self-motivated, stays on task through-out an entire project and keeps tools and materials organized at all times.	Student is observant, self-motivated, stays on task and keeps tools and materials organized 75% of the time or better.	Student is usually observant, and with reminders from instructor, stays on task and keeps tools and materials organized at least 75% of the time..
Attendance, safety attire and professional conduct CLOs: 4	Professional demeanor is observed at all times, student is always on time and stays through clean-up, is in appropriate PPE for project and ready to start work immediately.	Professional demeanor is observed, student is on time and stays through clean-up, is in appropriate PPE for project and ready to start work 75% of the time or more.	Professional demeanor is usually observed, student is mostly on time and stays through clean-up, and with minimal reminders from instructor, is in the appropriate PPE for project and ready to start work at least 75% of the time.

AG 54B - Tropical Ag Production II - Soft Skills RUBRIC

Student:_____ Evaluator:_____

Student Signature:_____Date:_____

APPENDIX B.6.b1.

AG54B Tropical Agriculture Production

Potted Pepper and Tomato Project Outline

Description: Each student will take part in the production of potted peppers and tomatoes to be sold on campus at the end of the semester. We will start with planning, bench layout and propagation followed by pest and disease management, pruning / training, and ultimately marketing and sales. This project will encompass three of the specified course learning outcomes:

1) Utilize good agricultural practices and commercial production methods to enhance production and marketing of field crops.
2) Demonstrate mastery of tools of production while promoting environmentally sound and labor saving technique.
4) Actively engage in a positive manner with classmates and community to complete projects and promote agricultural education.

Grading: Assessment will take place through observation of hands on technique during each phase of the project. 50% of the grade will be based on technical skills and 50% of the grade will be based on soft skills. The following technical skills will be assessed:

1) Propagation
2) Bench Setup
3) Media and Fertilizer Preparation
4) Transplanting
5) IPM
6) Pruning and Training
7) Marketing and Sales

APPENDIX B.6.b2.

SKILL BEING ASSESSED	EXCEEDS EXPECTATIONS (15 pts)	MEETS PROFICIENCY (10 pts)	DEVELOPING PROFICIENCY (5 pts)
Media and fertilizer preparation and propagation CLO: 1 &3	Student always plants seeds at proper depth, with proper amount of seeds per cell, uses sufficient nutrients and waters the seeds evenly.	Student plants seeds at proper depth, with proper amount of seeds per cell, uses sufficient nutrients and waters the seeds evenly 75% of the time or more.	With reminders from the instructor , the student plants seeds at proper depth, with proper amount of seeds per cell, uses sufficient nutrients and waters the seeds evenly at least 75% of the time.
Bench and irrigation set-up CLO: 2	Student independently sets up, cleans and levels the benches, spaces pots evenly, organizes emitters and successfully tests the irrigation system to make sure it is working properly with 100% accuracy.	Student independently sets up, cleans and levels the benches, spaces pots evenly, organizes emitters and successfully tests the irrigation system with 75% accuracy or better.	Student is able to set up, clean and level the benches, space pots evenly, organize emitters and successfully test the irrigation with help from the instructor and with at least 75% accuracy.
Transplanting, training and pruning CLO: 2	Student successfully transplants, waters, stakes, and removes lower leaves and branches to achieve desired structure with 100% accuracy.	Student successfully transplants, waters, stakes, and removes lower leaves and branches to achieve desired structure with 75% accuracy or better.	With assistance from the instructor, the student successfully transplants, waters, stakes, and removes lower leaves and branches to achieve desired structure with at least 75% accuracy.
Integrated pest management CLO: 1 & 3	The student always keeps the greenhouse clean, monitors the temperature and humidity, uses proper OMRI approved sprays if necessary, and is observant through-out grow-out phase for early intervention.	The student keeps the greenhouse clean, monitors the temperature and humidity, uses proper OMRI approved sprays if necessary, and is observant during the grow-out phase for early intervention 75% of the time or more.	With help from classmates and/or reminders from the instructor, the student keeps the greenhouse clean, monitors the temperature and humidity, uses proper OMRI approved sprays if necessary, and is observant during the grow-out phase for early intervention at least 75% of the time.
Marketing and sales CLO: 4	Student successfully transports, sets-up, and presents plants in an appealing way, engages with customers and answers questions that they may have, is 100% accurate with money exchanging, and enthusiastically participates in the cleanup and breakdown until sales are complete.	Student successfully transports, sets-up, and presents plants in an appealing way, engages with customers and readily answers questions, is comfortable with the money exchanges ,and participates in the cleanup and breakdown until sales are complete 75% of the time or more.	With assistance from classmates and the instructor, the student transports, sets-up, and presents plants in an appealing way, engages with customers and readily answers questions, is comfortable with the money exchanges ,and participates in the cleanup and breakdown until sales are complete at least 75% of the time.

AG 54B - Tropical Ag Production II - Potted Pepper/Tomato RUBRIC

APPENDIX B.6.b2.

Student:_____ Evaluator:_____

Student Signature:_____Date:_____

APPENDIX C.

Hawaii Community College and Ka`u High School

AG-CO Landscape Worker
Equivalence Matrix

Ka`u High School	Hawaii Community College
"C" or Better **TNC6010: Natural Resources CORE** **AND** **TNU 6242: Plant Systems** **AND** **SAH2003: Integrated Science** **AND** **MAX: Modeling Our World**	**Agriculture – Landscape Worker Certificate of Competence (12 credits, 24 contact hours per week))** **AG31: Farm Equipment, Machinery, and Power (3 credits, 6 contact hours per week)** **AG33: Greenhouse Construction (3 credits, 6 contact hours per week)** **AG40: Plant Identification (3 credits, 6 contact hours per week)** **AG46: Landscape Maintenance (3 credits, 6 contact hours per week)**

AG-CO Farm Worker
Equivalence Matrix

Ka`u High School	Hawaii Community College
"C" or Better **TNC6010: Natural Resources CORE** **AND** **TNU 6242: Plant Systems** **AND** **TNU6133: Natural Resources Production 1, Principles of Food Production**	**Agriculture – Farm Worker Certificate of Competence (18 credits, 36 contact hours per week)** **AG31: Farm Equipment, Machinery, and Power (3 credits, 6 contact hours per week)** **AG33: Greenhouse Construction (3 credits, 6 contact hours per week)**

APPENDIX C.

AND **Natural Resources Production 2, Principles of Food Production**	**AG54A: Tropical Agriculture Production I (6 credits, 12 contact hours per week)** **AG54B: Tropical Agriculture Production II (6 credits, 12 contact hours per week)**

APPENDIX D.

Campus Contacts

Hawaii Community College		
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Ka`u High School		
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Science Teacher	Beatriz Ramos-Jimenez	beatriz.ramos-jimenez@k12.hi.us
Special Education Teacher	Janice Javar	janice.javar@k12.hi.us 808-313-4108
Natural Resources Teacher	pending	

APPENDIX D.

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