Assessment: Program Review Update

Shasta College

Program (AG) - Horticulture and Landscaping AS.1492

Program Catalog Summary: Associate
in Science:
SC Program: AS.1492

PROGRAM DESCRIPTION: The Green Industry is a huge industry with many different career opportunities. Nursery sales exceed $55 billion nationally. California sells $13.26 billion in nursery and floral products annually and the Landscape Industry continues to grow rapidly as population increases both statewide and locally. This degree will prepare students for jobs in both landscape and nursery areas. Job opportunities continue to outnumber the number of graduates in our local area. Career choices include city and county parks; state and federal organizations; garden centers, independent, local and national chains; landscape maintenance business; floral design and arrangement; landscape design and installation and nursery and landscape management positions. Courses include directed practical experience in a modern horticulture facility that includes a floral lab room, 7,000 square feet of greenhouses and 20,000 square feet of landscaping. Many landscaping operations are also done on the beautiful 300-acre college campus.

Students should contact their counselor or environmental horticulture faculty advisor to choose electives for the particular career they are planning to enter. Particular attention should be paid to course prerequisites. Students planning to transfer to a college or university should consult a counselor or Horticulture Faculty Advisor regarding transfer requirements. TRANSFER REQUIREMENTS MAY BE DIFFERENT FROM A.S. DEGREE REQUIREMENTS.

This degree is approved through the California Community College Chancellor's Office. Upon satisfactory completion of all degree requirements and filing an application for graduation with Admissions and Records, the student's transcript will reflect completion of this degree.

PROGRAM LEARNING OUTCOMES:

Upon successful completion of the certificate, the student will be able to:

1. Demonstrate safe and efficient use of both nursery and landscape tools, equipment and supplies
2. Demonstrate the ability to communicate with clients, assess landscape for ecological and economic sustainability, measure and analyze a property, draft a landscape and a residential irrigation design, develop management schedules, and implement practices based on client needs.
3. Design and implement a nursery operation, select and make production schedules for greenhouse crops, and propagate, grow and market nursery crops.
4. Identify 150 landscape trees, shrubs and ground covers and select species suitable for different landscape situations.
5. Demonstrate skills to assess site or plant cultural issues and make recommendations for enhancing the health of the landscape planting or nursery plants using integrated pest management.
6. Describe and implement both conventional and sustainable methods for use in the landscape relating to cultural practices, weed control, soil amendments, plant selection and care.
7. Be prepared to take the California Pesticide Applicators Certificate Exam with the California Department of Pesticide Regulation.
8. Explain and apply basic principles of botany to horticulture practices.
9. Safely conduct landscape construction activities in the correct construction sequence: Including the proper installation of: a landscape sprinkler system, a low-volume (drip) irrigation system, concrete and brick pavers and landscape plants and sod.
10. Explain and apply the concepts of job estimating and laws as they pertain to landscape construction and maintenance.
11. Demonstrate landscape maintenance activities and equipment operation in a safe manner. Including the ability to test and evaluate soil fertility, select and apply fertilizers at the proper rate. Recognize common turf grass species and select proper maintenance techniques for each type of turf grass and to prune landscape trees and shrubs.
12. Demonstrate a strong work and personal ethic.
13. Demonstrate skills needed to take the Landscape Industries Certified Technician Exam.

DEGREE REQUIREMENTS:

Some of these classes require math skills. Students are encouraged to begin taking math classes early in the program.

CORE COURSES:

AG 6 Career Placement – Ag and Natural Resources 1
AGEH 10 Plant Identification and Usage 3
AGEH 22 Nursery Practices and Plant Propagation 2
AGEH 23 Nursery Practices and Management 2
AGEH 26 Integrated Pest Management in Environ. Hort. 3
AGEH 31 Landscape Irrigation 3
AGEH 33* Environmental Horticulture 3
AGEH 35 Landscape Design 3
AGEH 38 Landscape and Turf Management 3
AGEH 94 Horticulture Worksite Learning 3
AGMA 44 Introduction to Const. Skills for Ag and Nat. Res. 3
AGNR 52 Computers in Agriculture/Natural Resources 3
AGNR 66A Watershed Restoration Practicum I 1
AGNR 66B Watershed Restoration Practicum II 1
AGPS 24* Soils 3

*May be used to fulfill General Education requirements. See a counselor.

ASSOCIATE IN SCIENCE DEGREE REQUIREMENTS:

Major	36
Additional General Education	18
General Electives	6
Degree Total	60*

*Note: Calculation assumes a student will double-count the Multicultural graduation requirement with either a social science or humanities G.E. requirement and that the student will fulfill computer literacy through a test. If students plan well and see a counselor, they may be able to double count the Multicultural and Computer Literacy units. If these graduation requirements are added, the number of units is increased by 6 units.

Fall 2018

PRIOR PROGRAM REVIEW REFLECTION (If applicable)

Term and Year of Previous Review: Fall 2016

Discuss any changes to the program as a result of the previous program review: Deleted large unit certificate that was associated with this program as well as a couple of smaller unit certificates. Added the Sustainable Landscaping Certificate and two classes, one in landscape constriction and one in tree care. With the Sustainable Landscaping Certificate students take college courses that are aligned with industry standards so they will be able to meet industry skills objectives and be eligible to sit for industry skills certification and then can go on to get an AS degree if they desire or go to work with skills certifications. **Resources Received or Requested:** Online course development equipment and supplies for teaching mobile labs that would support online classes. Received funds for this through a mini grant.

CURRENT PROGRAM REVIEW

Who completed this form?: Leimone Waite

Participation in completing this report: Advisory Committee (if one exists)

Summarize participation comments: Students need more hands on experience.

Discuss some of the program successes and benefits to the students and/or community: Students are hired quickly upon completing the program, many times before they even finish the program. Employers report that students are well prepared with the knowledge they have learned in our program.

List each PLO and write a brief narrative summary analysis discussing outcomes for each of them: PLOs Develop management plans and designs based on client's needs -This has been a difficult assessment to track, we can determine if a student has passed public speaking but not what they have scored on assignments. We have been able to track student SLO results in AGEH 10 and AGEH 23. I was at a SLO/PLO workshop this last week and they were talking about tracking results through Canvas. Using Canvas may make this an easier PLO to track. Nursery operation-In the past two years 90% of students attempting this PLO have passed. We are in the process of creating an onsite wholesale nursery where students could attempt this PLO year round and with a different type of crop then just vegetable or flower starts. They could work with more difficult to propagate and grow crops such as Native Plants or Trees. This could enhance student learning by creating more diverse opportunities. We may need to update how this PLO is evaluated and tracked. Plant identification-Students have been taking advantage of the Plant Master software and creating their own study guides and lists. Students are also taking advantage of open study sessions. But there are still some students in the class who are not taking advantage of these study aids and they are the ones not passing. We need to see what barriers are causing students to not take advantage to these study opportunities. Integrated Pest Management- Students have excelled in this area, passing this PLO with an average of 94%. Students have been able to apply knowledge to passing both the applicators and Pest Control Adviser exams with the California Department of Pesticide Regulation. Landscape management- Students passed this PLO with an average of 92%, demonstrating a complete understanding of all the steps required to manage weed and pest problems using IPM. Pesticide Applicators Certificate preparation- All students who have attempted the Pesticide Applicators Exam have passed on the first try. This tells us that we are preparing them well to pass this exam. This is not an easy exam to pass. Principles of botany-This is an area where students continue to struggle, only an average of 66% success rate for the past couple of years for students attempting this PLO. This course is taught on line during the spring of each year and students struggle with this modality. Some of the data was difficult to track as the SLOs is not well aligned with the PLO. Have changed the SLO in Plant Science and will work with instructor in AGEH 33 to change the SLO to better track how each student is passing this this PLO Landscape construction -This PLO is difficult to track for each individual students. Would like to come up with a capstone test where each student would demonstrate these skills. I am working on installing a practice area where students could work on their skills in these areas Job estimating and regulations - Data for this PLO was not easily found. We need a more detailed rubric for scoring this assessment and an adjustment to the SLOs in the courses associated with this PLO to better track each student's success. Landscape maintenance Students attempting this PLO have passed almost all areas with at least a 90% or better. The only area where students struggled was in the turf identification area. We would like to improve student's ability to recognize the turf species. One way we are planning to do this is by implementing the UC IPM turf grass tool into future classes to help with keying out turf grass and to encourage students to practice more independently. Landscape Industries Certified Technician Exam preparation Students have continued to demonstrate competency in these area when they compete at the National Collegiate Landscape Competition. Would like to find a way to attach this skills test to in individual student to be able to track them better. I can keep results for each test but have no way of easily finding as student graduate. Safe use of tools-Students in the AGEH 38 class passed this PLO with 100%. However results from AGEH 44 were not available for assessing this PLO. We need to have a better method of tracking data for this PLO and to have more than one class SLO be the determining factor for this PLO Job Estimating and Laws- Did not have good data for tracking this PLO. Need to develop a rubric that could be used in AGEH 31 or AGEH 38 to asses this PLO Demonstrate a strong work and personal ethic. Students have continued to do well with this PLO but they are only the students that we place out into the work site or internship areas. I would like to assess the students who are not ready for this type of placement so that they can work toward the skills needed for a work site placement.

Describe how this program supports a transfer pathway to CSU or UC: This is not set up to be a transfer program however many students start on this degree and then decide to transfer so they switch over to the University Studies, Agricultural Science degree. Many of the courses still count for transfer so they do not loose many units if any.

Specify Labor Market Demand (for CTE programs): 12% growth in jobs for horticulture first line supervisors projected in the next two years.

PROGRAM DATA ANALYSIS

Program Effectiveness: Program data only shows 4 degrees in the past two years, this needs to be improved. This is one of the reasons we recommended adding a stack-able certificate during the last program review so if students did not complete the degree they could at least get a certificate and industry certifications.

Program Effectiveness (CTE): About 80% of our students go to work before completing their degree, so the training is in demand in our area however we do not have good completion numbers.

Course Success Rates: Course success rates are above college benchmark of 80%.

Course Retention Rates: Course retention rates are above 80% percent.

Course Enrollments: Average enrollments for the past two years for the courses in this program are 18.3 enrollments per section. This number is a bit skewed as some of the courses in this program are also offered as duel enrollment and these sections are set at 10 enrollments so this brings down the average section enrollment number. Without these sections calculated into the

average, the average course enrollments are 20 students. The course with the lowest enrollment average is Landscape Design (AGEH 35) with an average of 12 enrollments, this is a capstone course and only offered every other year.
Equity: Tableau data shows that students in this major are 10% more ethnically diverse than the average of our tri-county area according to 2017 census data. Age is varied with only 36% of students younger than 24 years of age. Depending on the semester there are between 10% to 16% more women than men in the major.

CURRICULUM

Review of courses with prerequisites: The only course with prerequisites is AGEH 35, Landscape Design, with a prerequisite of AGEH 10, Plant Identification and Usage, this has put a limit on the number of students who would enroll in this class but it has really increased student success and retention in the course. So it still seems like a necessary prerequisite.
Challenges to offering key courses: Challenges to offering courses are lack of qualified part time instructors so courses have to be taught on a rotating schedule by full time faculty. Enrollments are better when AGEH courses are offered in the late afternoon or evening. Other challenges are that some of our key courses are very specialized such as Landscape Design and have prerequisites that limit what students can take the class. We made some changes last program review and eliminated some courses, we have also gone to offering some of the lower enrolled courses every other year to concentrate enrollments. **Course changes:** Need to add AGEH 52 and AGEH 50 as options within this degree.

SUMMARY

Changes or improvements needed based on the analysis above: Need to add AGEH 52 an AGEH 50 as options in the degree. Move more classes to later in the day.
Note any resources you intend to request through the Area Planning process to improve the program: Plan to request a portable light so we can work outside once the days get shorter.

BELOW TO BE COMPLETED BY THE PROGRAM REVIEW COMMITTEE

COURSE STATISTICS

		Academic Year				
Course Name		2012-13	2013-14	2014-15	2015-16	2016-17
AG-6	# of Sections	2	3	2		2
	Enrollment	20	15	19		15
	FTES	0.7	0.4	0.6		0.6
	FTEF	0.07	0.07	0.05		0.04
	WSCH	20	13	18		17
	Avg Enrl/Section	10	5	10		8
	Avg FTES FTEF	1.50	2.55			1.50
	Avg WSCH FTEF	45	75			45
AGEH-10	# of Sections				1	1
	Enrollment				14	12
	FTES				1.7	2.0
	FTEF				0.28	0.28
	WSCH				50	60
	Avg Enrl/Section				14	12
	Avg FTES FTEF				5.89	7.06
	Avg WSCH FTEF				176	212
AGEH-22	# of Sections	1	1	1	1	1
	Enrollment	16	22	16	23	18
	FTES	1.9	2.8	2.1	2.5	2.1
	FTEF	0.22	0.22	0.22	0.22	0.22
	WSCH	56	84	64	76	64
	Avg Enrl/Section	16	22	16	23	18
	Avg FTES FTEF	8.63	12.92	9.83	11.68	9.83
	Avg WSCH FTEF	258	388	295	351	295
AGEH-23	# of Sections	1	1	1	1	1
	Enrollment	12	16	15	13	15
	FTES	1.3	1.9	1.9	1.6	1.9
	FTEF	0.22	0.22	0.22	0.22	0.22
	WSCH	40	56	56	48	56
	Avg Enrl/Section	12	16	15	13	15
	Avg FTES FTEF	6.14	8.63	8.63	7.38	8.63
	Avg WSCH FTEF	185	258	258	222	258
AGEH-26	# of Sections		1	1		1
	Enrollment		14	16		10
	FTES		2.3	2.3		1.3
	FTEF		0.28	0.28		0.28
	WSCH		70	70		40
	Avg Enrl/Section		14	16		10
	Avg FTES FTEF		8.22	8.22		4.69
	Avg WSCH FTEF		247	247		141
AGEH-31	# of Sections			1		1
	Enrollment			17		13
	FTES			2.8		2.0

	FTEF			0.28		0.28
	WSCH			85		60
	Avg Enrl/Section			17		13
	Avg FTES FTEF			9.99		7.06
	Avg WSCH FTEF			300		212
AGEH-33	# of Sections	2	2	2	2	3
	Enrollment	52	54	49	52	75
	FTES	4.5	4.7	4.2	3.9	5.9
	FTEF	0.40	0.40	0.40	0.40	0.40
	WSCH	137	144	128	119	176
	Avg Enrl/Section	26	27	25	26	25
	Avg FTES FTEF	11.25	11.75	10.50	9.75	10.50
	Avg WSCH FTEF	343	360	320	298	320
AGEH-35	# of Sections	1		1		1
	Enrollment	16		15		10
	FTES	2.5		2.4		1.7
	FTEF	0.28		0.28		0.28
	WSCH	75		71		50
	Avg Enrl/Section	16		15		10
	Avg FTES FTEF	8.82		8.12		5.89
	Avg WSCH FTEF	265		251		176
AGEH-38	# of Sections		1	1		
	Enrollment		10	15		
	FTES		1.7	2.3		
	FTEF		0.28	0.28		
	WSCH		50	70		
	Avg Enrl/Section		10	15		
	Avg FTES FTEF		5.89	8.22		
	Avg WSCH FTEF		176	247		
AGEH-94	# of Sections	5	9	7	6	7
	Enrollment	8	15	10	10	10
	FTES	0.4	1.1	0.5	0.6	1.0
	FTEF	0.00	0.00	0.00	0.00	0.00
	WSCH	56	138	60	74	130
	Avg Enrl/Section	2	2	1	2	1
	Avg FTES FTEF					
	Avg WSCH FTEF					
AGMA-44	# of Sections	2	2	3	3	5
	Enrollment	45	50	62	73	105
	FTES	9.0	10.0	11.3	13.9	19.8
	FTEF	0.65	0.65	0.65	0.65	0.98
	WSCH	270	300	338	385	586
	Avg Enrl/Section	23	25	21	24	21
	Avg FTES FTEF	13.85	15.38	16.00	19.08	17.23
	Avg WSCH FTEF	415	462	480	572	517
AGNR-52	# of Sections	2	2	3	2	2
	Enrollment	44	38	53	51	38

	FTES	7.5	5.5	8.8	7.5	5.2
	FTEF	0.57	0.57	0.85	0.57	0.57
	WSCH	225	165	265	225	155
	Avg Enrl/Section	22	19	18	26	19
	Avg FTES FTEF	13.24	9.71	10.40	13.24	9.11
	Avg WSCH FTEF	397	291	312	397	274
AGNR-66A	# of Sections		1	2	2	1
	Enrollment		34	48	57	38
	FTES		2.2	3.1	3.2	2.3
	FTEF		0.11	0.22	0.22	0.11
	WSCH		67	93	97	69
	Avg Enrl/Section		34	24	29	38
	Avg FTES FTEF		20.04	13.99	14.45	20.59
	Avg WSCH FTEF		619	429	448	637
AGNR-66B	# of Sections			2	1	2
	Enrollment			22	18	42
	FTES			1.6	1.1	2.7
	FTEF			0.22	0.11	0.22
	WSCH			47	33	82
	Avg Enrl/Section			11	18	21
	Avg FTES FTEF			6.93	9.88	12.33
	Avg WSCH FTEF			217	305	379
AGPS-24	# of Sections	2	3	3	3	3
	Enrollment	61	65	76	70	69
	FTES	9.1	8.9	10.8	9.4	8.5
	FTEF	0.57	0.69	0.85	0.85	0.80
	WSCH	262	255	308	257	235
	Avg Enrl/Section	31	22	25	23	23
	Avg FTES FTEF	15.99	13.71	12.71	11.11	10.56
	Avg WSCH FTEF	462	393	362	302	294
Grand Total	# of Sections	18	26	30	22	31
	Enrollment	200	227	252	278	325
	FTES	36.9	41.5	54.7	45.4	56.9
	FTEF	2.97	3.49	4.79	3.51	4.67
	WSCH	1,141	1,342	1,673	1,364	1,780
	Avg Enrl/Section	11	9	8	13	10
	Avg FTES FTEF	11.14	11.54	10.86	12.08	10.62
	Avg WSCH FTEF	332	345	326	359	318