Agriculture and Natural Resources

2019
ANNUAL REPORT OF PROGRAM DATA

UNIVERSITY of HAWAI'I®
MAUI COLLEGE

1. Program Description

a) The Agriculture and Natural Resources program has three areas of emphasis each with degrees and/or certificates: *Sustainable Tropical Crop Management* (CO,CA,AAS) which focuses on production and entrepreneurship; *Horticulture and Landscape Maintenance* (CO,CA,AAS) which covers careers in the green industry; and *Natural Resource Management* (CO,ATS) to prepare for jobs in resource management. Program student outcomes are as follows:
PLO 1. - Use basic business principles to manage projects or design a horticultural business enterprise.

PLO 2. - Recommend cultural practices, solve problems, plan projects, and/or cultivate horticultural crops in a sustainable manner based on sound biological and technological principles.

PLO 3. - Explain the relationships between agroecosystems, economics, human culture, and natural environments

PLO 4. - Design gardens that demonstrate aesthetic principles. (hort & landscape only)

b) Program Mission: We envision a program that promotes active student engagement by providing high quality instruction in agriculture, horticulture, and natural resource management with an emphasis on entrepreneurship and sustainability.

c) Program website has not been viewed or updated in a very long time.

d) Program page in catalog was last updated for curriculum changes in Spring 2019. The current page needs a revision to reflect the curriculum change of 3 credits of MATH required; AG 235 can be used as 100 level math requirement.

2. Analysis of the Program

a) Program was given a Healthy score. Strengths in the data that stand out are an 86% successful completion rate. Degrees and certificates are low but our students are mostly part time (between 60-90% over the last three years) There is a high rate of low enrolled courses but last year 4 total course offerings have enrollment caps of 10 or less (AG 162 &163 Beekeeping- 10; AG 232 Tractors - 5). The most concerning trend which mirrors that of the campus, is the continued decline in enrollment. Only two Perkins measures were not met 2P1 Completion and 4P1 Placement. Getting students in the door and then keeping them until successfully completion has always been the most challenging aspect for the program. Staff continues to recruit, especially targeting middle and high school students; and work hard at retention while maintaining academic rigor.
Why Agriculture and Natural Resources is not considered STEM is still a mystery. This is quite frankly bogus. Come take some classes and see.

AG	27 Total TEs taught in AG		
		0 TEs taught by non-AG BoR instructors	
		0 TEs taught OUT	
	354 total SSH taught from AG courses		
		Estimated Tuition Total of $52,765	
		Estimated Salary Total	143250
		277 SH taught to AG majors	
		77 SH taught to Non-AG majors	

UHMC data reflect that non-majors do use Agriculture courses as electives. Note that lecturer salaries were mostly paid via USDA grant funds so the actual salary cost was mitigated for the college in the low enrollment cap courses of beekeeping and tractors.

Program actions include the simplification of program options by dropping CA in Floriculture Management. AG 235 was accepted as satisfying the 100 level math requirement as long as students have another 3 credits of MATH. Partnership with GoFarmHawaii and our certificate of competence in Sustainable Crop Production.

b) All courses, with AG 230 as an exception, are taught as lecture and lab or lecture/lab or lab only. Courses generally have traditional labs and practical hands-on applications of the learning objectives. These courses do not lend themselves easily to a format that is not face-to-face, Most courses are taught every other year. AG 200 is an exception and taught every Fall. This course was taught WI but not in the last two years. WI will be re-instated Fall 20 which should drive enrollment up. The partnership with GoFarmHawaii has supported paying a full time APT Farm Coach who assists with courses in the Sustainable Crop Production Certificate of Competence. Due to this support the suite of classes in this series AG 103,104, 251, 252,232 have been taught every year since AY 17-18.
c) AG 103 has been the program's FYE course. The attention to new students in areas beyond the class has helped in retention.

3. Program Student Learning Outcomes

a) PLO's : Please refer to section 1.
PLO 2:. *Recommend cultural practices, solve problems, plan projects, and/or cultivate horticultural crops in a sustainable manner based on sound biological and technological principles.*
b) Assessment Activity: Students in AG 252 independently raised crops. They determined cost of production for two of those crops. They planned a "summer" 8 week CSA scenario including produce amounts to meet market needs, planting dates for continuous harvest, area required, and planting, harvest and cultural practice schedules as one part of their final projects.
c) Seven of 8 were successful with the one student not completing the project. 50% were excellent and excelled in this learning outcome

d) Changes: Students also needed a business plan as part of the final project for GoFarmHawaii. This was difficult and has been scaled back as a shorter exercise that will lead students to develop a business plan with GoFarmHawaii professionals. The scheduling and cost of production exercise will continue with only small alterations as these skills need to be practiced and demonstrated by the students.

4. Action Plan

a) Molokai Farm began a new partnership with a non-profit in Spring 19. The USDA Hi!Ag grant was written with the intent to increase support for the program on Molokai (and support was given to Molokai with the last grant during AY 18-19) but administration has pulled back offering the AG program on Molokai. So this has impacted the AY 19-20 action plan for the grant. The fate of Agriculture training via UHMC on Molokai seems up in the air. Hybrid courses to Molokai could be implemented but AG Lab facilities and faculty capabilities need to be in place for that to occur.
A Perkins grant to explore "Ag Tech" in response to Mahi Pono starting up agriculture on Maui was written and accepted. Curriculum in the emerging Ag Tech area will be explored AY 19-20 using a faculty paid by Perkins.
The GoFarmHawaii partnership to train and promote new farming entrepreneurs continues quite successfully. From last year's action plan, training for one staff, the GoFarmHawaii coach, has occurred in attending a few local conferences. The faculty was able to attend an AG Tech International Conference using USDA grant funds.
The USDA grant has continued to provide support for student stipends, student help, lecturer funds and fortunately supply money so that the department can provide appropriate tools and upgrade our facilities to support our leaning outcomes.

b) Our actions hinge on providing instruction and the tools for that instruction to enhance student learning. Curriculum development in AG Tech and upgrading facility or tools are our main action plan. For example, replacing our old block greenhouse benches with pipe legs and copper flanges to prevent slugs in our seedlings is a goal. We have installed and will install new irrigation systems in our field and turf areas.

The Agriculture and Natural Resources program is expensive. Our supply and tool and equipment needs generally exceeds $20,000 per year. In addition, student help is vital. The program has paid for this for many years by selling plants, flower, honey, and vegetables, and writing and executing grants. This consumes a significant portion of our faculty and staff and student time and energy. For this coming year we have no additional action plan except to try to improve our aging infrastructure, recruit students, and explore AG Tech and careers that might be appearing in the future.

5. Resource Implications

Our physical plant is aging. The border fence is over 35 years old. Many parts of this fence need to be repaired or replaced. We need tents or sheds for our equipment and a raised roof on our tractor shed. There are small repairs needed in the greenhouse including a new counter for the Dosatron.

Equipment: Need a new (or lightly used) cart with a dump. Chisel plow. Fortunately for the program, grant funds have helped and we are better off than many other agriculture programs.

Human needs – the program was built as a two faculty program. An additional faculty, who could also teach TE' in biology, ecology or even GIS to fill part of their load would be ideal. A new lecturer has been identified which may help at least in the short run. The current faculty will age out in 2-6 years. A new faculty should be considered so a transition can occur. The program requires faculty to teach many courses in totally different fields. This will be a difficult situation for a brand new faculty without support and time to learn.

Financial: Equipment and equipment repair. Facility repair. We have grant funds for one perhaps two years after that it is uncertain.

Appendix: ARPD data

College: University of Hawai'i Maui College
Program: Agriculture and Natural Resources
Status: Report Complete

Program Quantitative Indicators

Overall Program Health: Healthy

Workforce Alignment: Classification of Instructional Programs (CIP) -to- Standard Occupational Classification (SOC)

Agriculture and Natural Resources
CIP Code = 01.0301

- 11-9013 - Farmers, Ranchers, and Other Agricultural Managers
- 37-3012 - Pesticide Handlers, Sprayers, and Applicators, Vegetation

Print ARPD

	Demand Indicators	2016 - 17	2017 - 18	2018 - 19	Demand Health
1.	New & Replacement Positions (State)	241	225	223	
*2.	New & Replacement Positions (County Prorated)	45	39	36	
3.	Number of Majors	42	36	38	
3a.	Number of Majors Native Hawaiian	12	9	12	
3b.	Fall Full-Time	20%	33%	23%	
3c.	Fall Part-Time	80%	68%	78%	
3d.	Fall Part-Time who are Full-Time in System	3%	0%	0%	
3e.	Spring Full-Time	35%	22%	11%	Healthy
3f.	Spring Part-Time	65%	78%	89%	
3g.	Spring Part-Time who are Full-Time in System	2%	3%	3%	
4.	SSH Program Majors in Program Classes	379	306	273	
5.	SSH Non-Majors in Program Classes	138	149	80	
6.	SSH in All Program Classes	517	455	353	
7.	FTE Enrollment in Program Classes	17	15	12	
8.	Total Number of Classes Taught	12	14	14	

NOTE: New & Replacement jobs updated (View Methodology).

Efficiency Indicators		2016 - 17	2017 - 18	2018 - 19	Efficiency Health
9.	Average Class Size	15	12	11	Cautionary
*10.	Fill Rate	75.5%	61.6%	53.3%	
11.	FTE BOR Appointed Faculty	1	2	1	
*12.	Majors to FTE BOR Appointed Faculty	42	18	38	
13.	Majors to Analytic FTE Faculty	42	18	38	
13a.	Analytic FTE Faculty	1	1	1	
14.	Overall Program Budget Allocation	$120,294	$116,628	$0	
14a.	General Funded Budget Allocation	$120,294	$116,628	$0	
14b.	Special/Federal Budget Allocation	$0	$0	$0	
14c.	Tuition and Fees	$0	$0	$0	
15.	Cost per SSH	$233	$0	$0	
16.	Number of Low-Enrolled (<10) Classes	2	4	5	

Effectiveness Indicators		2016 - 17	2017 - 18	2018 - 19	Effectiveness Health
17.	Successful Completion (Equivalent C or Higher)	84%	78%	86%	Healthy
18.	Withdrawals (Grade = W)	7	7	6	
*19.	Persistence Fall to Spring	68%	66%	64%	
19a.	Persistence Fall to Fall	44%	49%	35%	
*20.	Unduplicated Degrees/Certificates Awarded	9	11	14	
20a.	Degrees Awarded	5	6	3	
20b.	Certificates of Achievement Awarded	3	3	3	
20c.	Advanced Professional Certificates Awarded	0	0	0	
20d.	Other Certificates Awarded	9	11	15	
21.	External Licensing Exams Passed	0	0	0	
22.	Transfers to UH 4-yr	3	1	0	
22a.	Transfers with credential from program	0	0	0	
22b.	Transfers without credential from program	3	1	0	

	Distance Indicators	2016 - 17	2017 - 18	2018 - 19	
23.	Number of Distance Education Classes Taught	0	0	0	
24.	Enrollments Distance Education Classes	0	0	0	
25.	Fill Rate	0%	0%	0%	
26.	Successful Completion (Equivalent C or Higher)	0%	0%	0%	
27.	Withdrawals (Grade = W)	0	0	0	
28.	Persistence (Fall to Spring Not Limited to Distance Education)	0%	0%	0%	

	Perkins Indicators	Goal	Actual	Met	
29.	1P1 Technical Skills Attainment	93	100	Met	
30.	2P1 Completion	55	50	Not Met	
31.	3P1 Student Retention or Transfer	81.9	100	Met	
32.	4P1 Student Placement	66.25	50	Not Met	
33.	5P1 Nontraditional Participation	23.5	41.03	Met	
34.	5P2 Nontraditional Completion	23	60	Met	

	Performance Indicators	2016 - 17	2017 - 18	2018 - 19	
35.	Number of Degrees and Certificates	8	9	6	
36.	Number of Degrees and Certificates Native Hawaiian	1	0	0	
37.	Number of Degrees and Certificates STEM	Not STEM	Not STEM	Not STEM	
38.	Number of Pell Recipients[1]	4	3	4	
39.	Number of Transfers to UH 4-yr	3	1	0	

*** Used in Rubric to determine Health Indicator**

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Glossary/Rubric