Tropical Forest Ecosystem and Agroforestry Management

2019
ANNUAL REPORT OF PROGRAM DATA

UNIVERSITY of HAWAI'I®
HAWAI'I
COMMUNITY COLLEGE

1. Program Description

Students learn to actively manage Hawai'i's native forest ecosystems, grow native plants, establish agroforestry operations, use Global Positioning Systems (GPS), and Geographic Information Systems (GIS). Internships give students' on-the-job training with potential employers.

Program Learning Outcomes

1. Apply basic ecosystem concepts to natural resource management.
2. Use an understanding of general scientific concepts to design forestry systems.
3. Use knowledge of applicable laws and regulations to make decisions about managing ecosystems.
4. Apply effective interpersonal and communication skills.
5. Recognize, collect and interpret field data.
6. Apply effective management practices to commercial or conservation efforts.

2. Analysis of the Program

Demand - Based on program quantitative indicators, this category was listed as healthy, as it had been for the last three years. We have finally been able to use CIP codes that adequately reflect the actual careers where our graduates end up working thus showing that there is high demand for forestry technicians. A weakness in this category includes the drop in the number of program majors from 24 in 2017 to 22 in 2019.

Efficiency - Program efficiency was listed as cautionary due primarily to low class enrollment. Class size has been consistently low for the last three years with an average class size of seven students, which is at 47% of capacity. It appears that an error occurred under program budget allocation, where in 2016-17 it is listed that $110.962 was from general funds and no funds listed from special or federal sources. The listing should be reversed as the program received this amount from a federal USDA grant. In academic years, 2017-18 and 18-19 no general or federal funds were listed, while in fact approximately 100K was allocated to the program from the USDA in both years. Strengths include one BOR appointed faculty for the 22 students in the major.

Effectiveness - This category was listed as cautionary due to a low successful completion rate of 77% in academic year 2018-19. This value represents an 8% drop from the previous year when the completion rate was 85%, which contributed to a healthy effectiveness listing for the program. One strength that occurred during the 2018-19 fiscal year was an increase in student fall-to-spring persistence from 65% in the previous year to 95% and fall-to-fall persistence increase from 35% to 65% during the same period.

Perkins Indicators – For Technical Skills Attainment and Completion Indicators, the TEAM Program exceeded goals by considerable margins. However, this was not the case for Student Retention or Transfer and Student Placement Indicators where the Program fell short of goals by 15% and 16% respectively. We feel that the Retention and Transfer indicators were not met because two students did not complete their 2nd year in the program due to personal matters, and only one of our five graduates transferred to higher education before completing the degree program. Two graduates were placed into full-time forestry positions, and two are working in forestry part-time. For the indicators of Non-Traditional Participation and Completion, these were also not met with actual results 12% and 9% below the set goals. Based on our student data, during the academic year 2018/19 there were five females out of 22 total majors, and during this time none of them completed the program. Currently, in Fall 2019 there are eight females in the Program out of a total of 20 students with at least three or four predicted to graduate in Spring 2020.

Performance Indicators – During the past academic year the number of degrees and certificates conferred seems consistent with previous years. However, the number of Native Hawaiian graduates is considerably lower than normal with only two out of the five graduates being of Hawaiian ancestry. As for the ARPD declaration that the Forest TEAM is not a STEM program, faculty and administrators alike strongly agree that this is not true. The program offers an Associates of SCIENCE degree designed by scientists, which has a science-based curriculum that was approved by the Board of Regents.

3. Program Learning Outcomes

a) Forest TEAM Program Learning Outcomes (PLOs)

1. Apply basic ecosystem concepts to natural resource management.
2. Use an understanding of general scientific concepts to design forestry systems.
3. Use knowledge of applicable laws and regulations to make decisions about managing ecosystems.
4. Apply effective interpersonal and communication skills.
5. Recognize, collect and interpret field data.
6. Apply effective management practices to commercial or conservation efforts.

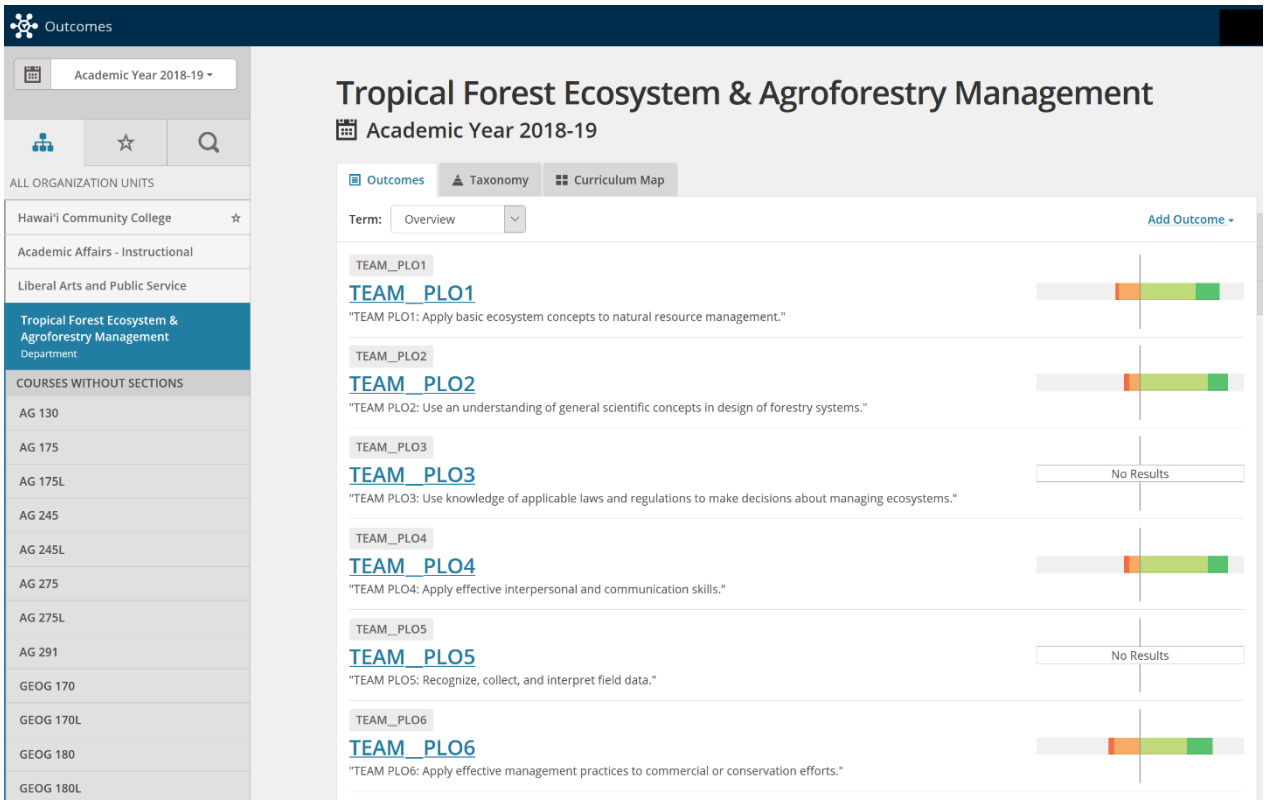
b) PLOs assessed in AY18-19: PLO 1, 2, 4 and 6 were assessed through AG 175 and AG 175L, Fall 2018.

c) Assessment Results: based on course assessment of AG 175 and AG 175L:

PLO 1=77% of students met or exceeded achievement standards
PLO 2=85% of students met or exceeded achievement standards
PLO 4=85% of students met or exceeded achievement standards
PLO 6=70% of students met or exceeded achievement standards

TEAM Program AY18-19 Assessment Results

Dark Green = Exceeds // Light Green = Meets // Orange = Partly Meets //Red = Does not Meet



d) Actions: Based on the results of the program assessment for AG 175, material will continue to be taught in a similar manner. The course is very effective in helping students to define agroforestry. Based on the results of the program assessment for AG 175L, instructor will develop ways to assess students' knowledge while in the field and/or use lab reports as the assessment metric.

4. Action Plan

Aside from improving curriculum based on our assessment results, the most important goals of the program are to increase enrollment, retain more students, and continue placing graduates into good positions or help them to transfer to a 4-year college. To improve enrollment, we hired an APT during the late spring and summer of 2019, which helped to further extend our outreach to high schools. In the current academic year, the program has renewed its Forestry Club with new officers and the Forest Junior Club (high school age) has been revived after a 10-year hiatus. It is hoped that by conducting activities with the Junior TEAM club, we will bring more students into the program. In addition, the program faculty and student workers will be attending career fairs at high schools and other community events.

To retain students, we plan to update the curriculum so that it is relevant to current issues and keep the students engaged with conservation and environmental activities.

The latter is best done by making sure our courses can visit sites on the island where these activities are taking place and student are able to attend conferences and workshops where they can be inspired to stay in school and make positive changes in their environment. The USDA grant has helped us make sure our vehicles are in good working order and has funds to assist with student scholarships, travel and registration to conferences.

Helping students to find jobs in forestry related fields on the island requires constant networking with colleagues at the various agencies and in the private sector. Job announcements and internship opportunities are being sent out weekly to students. In addition, we will continue to work with second year students to place them into internship positions with agencies or industry, which greatly increases the likelihood of their employment upon graduation. We also plan to work with our program advisory board as closely as possible to help us keep abreast of new trends and opportunities in the forestry and natural resource management sectors.

5. Resource Implications

Program resources include the following physical features: Science lab, computer lab, greenhouse and agroforestry demonstration area, two tractors, various AG and forest management tools, one 2wd van, one 4wd van, one 4wd drive truck, and various instruments to collect field data and software for computer analysis.

Human resources include one full time faculty, one part-time program faculty, two lecturers and three student workers paid by the USDA grant.

Financial resources are from University general funds used to pay tenured faculty and lecturers and from the USDA competitive Alaska Native Native Hawaiian (ANNH) Agricultural grant used to pay student workers and purchase materials, fund scholarships, student internships and student and faculty travel. For the academic year 2019-20, the program was awarded $76,000 in direct funds of which $25,000 is shared with the AG and Hawaiian Studies programs. Plans are underway to submit another USDA ANNH proposal in the early spring of 2020.