

UNIVERSITY OF HAWAI'I COMMUNITY COLLEGES  
ANNUAL INSTRUCTIONAL PROGRAM REVIEW  
PROCEDURES, COMPONENTS, AND MEASURES

(Forest TEAM)

Introduction:

The Forest TEAM program is an Associate of Science degree program which is designed to prepare individuals for careers as Ecosystem Management Technicians, which includes work in native forest conservation and restoration, with commercial forest plantations, or with Agroforestry operations. Graduates are prepared for employment with state and federal agencies, the private sector, or to set up their own businesses. Students may also opt to continue with their four-year degree.

TEAM graduates at HawCC are prepared with knowledge and skills for entry-level positions in the fields of plant propagation, forest restoration, forest surveying, agroforestry, and use of GIS in decision making and management.

TEAM students should be able to:

**I. Apply basic eco-system concepts to natural resources.**

- A. Acquire knowledge of forest ecology in Hawai'i;
- B. Demonstrate awareness of wildlife population dynamics;
- C. Demonstrate knowledge of natural cycles such as water, carbon, minerals, etc.;
- D. Understand unique Hawaiian ecosystems;
- E. Acquire knowledge of natural disturbances such as hurricanes, volcanoes, and fires;
- F. Acquire basic knowledge of hydrology;
- G. Be familiar with water quality and chemistry;
- H. Understand habitat for aquatic animals;
- I. Be familiar with the geography of the Hawaiian Islands;
- J. Understand edges and corridors;
- K. Conduct an environmental assessment for a specific site;
- L. Understand volcanic geology.

**II. Use an understanding of general science concepts to apply experimental designs.**

- A. Complete core courses in science and math; Science courses to include ecology and either botany or zoology;
- B. Apply simple experimental designs;
- C. Analyze simple experimental data.

**III. Use knowledge of applicable laws and regulations to make decisions about managing ecosystems.**

- A. Identify applicable regulations;
- B. Comply with regulations;
- C. Communicate with regulatory agencies and/or supervisor;
- D. Apply chemicals in a safe and appropriate manner;\
- E. Able to determine applicability of various laws and regulations to specific projects.

**IV. Apply effective interpersonal and communication skills.**

- A. Demonstrate leadership skills;
- B. Be able to write reports, correspondences, etc.;
- C. Be able to work collaboratively as part of a team;
- D. Give effective oral presentations;
- E. Demonstrate computer literacy;
- F. Write a management plan.

**V. Recognize, collect, and interpret field data.**

- A. Inventory natural resources;
- B. Demonstrate survey techniques—must include land survey, GPS aerial photo interpretation, data loggers, and assorted survey equipment;
- C. Use GIS and other modeling programs in field analyses;
- D. Interpret GIS and other modeling programs in field analyses;
- E. Produce reports on data analysis (both oral and written).
- F. Analyze and summarize data;
- G. Demonstrate knowledge of field identification methods of plants and animals;
- H. Demonstrate knowledge of an environmental management plan;
- I. Conduct property title search and tax map key search;
- J. Review aerial photo images;
- K. Interpret maps.

**VI. Apply effective management practices to commercial or conservation efforts.**

- A. Demonstrate general business skills;
- B. Demonstrated knowledge of integrated pest management;
- C. Be familiar with mensuration and inventory management;
- D. Identify forest restoration principles;
- E. Practice silviculture;
- F. Be aware of tropical agro-forestry practices and products;
- G. Understand the issue of biodiversity;
- H. Prepare and write a management plan for a specific parcel of land;

I. Be aware of tropical agro-forestry practices.

Part I. Quantitative Indicators for Program Review

	AY 04-05	AY 05-06	AY 06-07
TEAM			
1. Annual new and replacement positions in the State	1064	1064	1064
2. Annual new and replacement positions in the County	109	109	109
3. Number of majors	36	32	34
4. Student Semester Hours for program majors in all program classes	154	96	120
5. Student Semester Hours for Non-program majors in all program classes	16	38	16
6. Student Semester Hours all program classes	170	134	136
7. FTE Program enrollment	11.33	8.93	9.07
8. Number of classes taught	8	9	7
9. Determination of program's health based on demand (Health, Cautionary, or Unhealthy)			
10. Average Class Size	9	6.67	8.29
11. Class fill rate	63.72%	46.15%	50.43%
12. FTE of BOR appointed program faculty	0	0	0
13. Student/Faculty ratio	0:1	0:1	0:1
14. Number of Majors per FTE faculty	28.35	32	31.78
15. Program Budget Allocation (Personnel, supplies and services, equipment)	\$63,198.10	\$49,556.00	\$52,789.10
16. Cost Per Student Semester Hour	\$371.75	\$369.82	\$388.16
17. Number of classes that enroll less than ten students	4	7	4
18. Determination of program's health based on Efficiency (Healthy, Cautionary, or Unhealthy)			
19. Persistence of majors fall to spring	66.67%	81.25%	76.47%
20. Number of degrees earned (annual)	2	4	10
21. Number of certificates earned (annual)	6	3	4
22. Number of students transferred (enrolled) to a four-year institution in UH	2	0	0
23. Perkins core indicator: Academic Attainment(1P1)	100.00%	100.00%	100.00%
24. Perkins core indicator: Technical Skill Attainment (1P2)	100.00%	100.00%	83.33%
25. Perkins core indicator: Completion Rate (2P1)	100.00%	75.00%	50.00%
26. Perkins core indicator: Placement in Employment Education, and Military (3P1)	50.00%	50.00%	66.67%
27. Perkins core indicator: Retention in Employment (3P2)	100.00%	100.00%	100.00%
28. Perkins core indicator: Non Traditional Participation (4P1)	42.11%	57.14%	50.00%
29. Perkins core indicator: Non Traditional Completion (4P2)	33.33%	80.00%	40.00%
30. Determination of program's health based on effectiveness (Healthy, Cautionary, Or Unhealthy)			
31. Determination of program's overall health (Healthy, Cautionary, or Unhealthy)			
32. Number of FTE Faculty	1.27	1	1.07

## Part II. Analysis of the Program

In the 1990s, studies of the State of Hawai'i workforce targeted forest and conservation workers as an area with a large potential need and lack of in-state training programs. In response to this and a Secretary of Conservation Biology workshop in 1997, the State of Hawai'i Dept. of Labor's Workforce Development Office and the Hawai'i Community Forestry Initiative provided seed money for Hawaii Community College to develop grant proposals that led to the initiation of the Forest TEAM program.

The strengths of the program are:

- Requires internships with potential employers;
- Produces qualified graduates that are employed in the local community;
- Through near-finished articulation agreements with Oregon State University and University of Hawai'i at Hilo, the program provides graduates with opportunities to complete 4-year degrees in natural resources;
- The program is situated in an ideal environment which provides students with the opportunity for hands-on field experience;
- The program has a strong relationship with its Advisory Board, which strengthens the program and provides internship opportunities for students.
- Utilizing the latest technology, the program is distributing its courses throughout the entire island of Hawai'i.

Challenges for the program are:

- Under-prepared students that require remedial/developmental education prior to entering the program, which reduces enrollment;
- Students from other islands find it difficult to relocate to the Big Island.

Although the number of majors experienced a 6% drop from academic year 2004-2005, the number of majors has increased by over 20% since academic year 2003 - 2004 and by over 95% since academic year 2002 - 2003.

The average class size decreased by 43% between 2004-2006 and 2005-2006 but increased by nearly the same amount the following year, leading to very little change over the three year period. The number of FTE faculty has remained approximately constant with a low of 1 and a high of 1.27 over the past three years, and the student: faculty ratio has also remained constant.

Our students did well in the program paid courses (PPC) with a credits earned ratio of 0.95 and an average GPA of 3.33. In non PPC courses the ratio was lower (0.75) as was the GPA (2.49). We are graduating about 22% of our majors.

Our program cost per SSH is \$388.16.

### Significant Program Actions:

In the last 12 months we have had one new faculty member start teaching (start date = January 2007), and another new faculty, Pamela Scheffler, began teaching one semester prior to that (Fall 2006). Our previous faculty member, Kenneth Boche resigned his

position at the end of the Spring 2006 semester and Fred Stone continues at 20% FTE working on grants. Talena Adams, our office assistant, resigned her position in September 2007 and since then we have had no office help with the Forest TEAM. Faculty members have been taking over the duties, as possible, but we are in need of a clerk/typist so that faculty can put their effort into teaching and grant-related duties.

We have worked on our last action plan through the following activities:

- Recruitment expansion through brochure mailings and participation in career fairs such as the Ka Lei Lehua O Kona event in Fall 2007.
- One of our faculty is scheduled to attend the Natural Resources Career Pathways meeting on Oahu in Spring 2008.
- Distance Education courses are being sent to the West Hawai'i campus (three courses sent in Fall 2007, four planned for Spring 2008).
- We continue to work with the Advisory Board to meet the needs of employers, meetings are held once per semester with the board to ensure that employer needs are being addressed
- We continue to work with federal and state agencies, providing service learning and internship opportunities for our students with said agencies.
- We are continuing to work on articulation agreements with UHH and OSU and expect to have agreements signed within the year for both universities.

### Part III. Action plan

The Forest TEAM Program plans to do the following:

- Continue to expand recruiting through brochure mailings to all public and private high schools statewide. Continue to participate in career fairs at local high schools in the Career Pathways career fairs held in Hilo each year. Continue to visit classes of high school teachers in agriculture and natural resources. Offer two summer Explorations classes to high school students.
- Extend work with the Natural Resources Career Pathways program, targeting teachers on the Big Island schools who are participating in the program
- Send applied TEAM distance education classes to the West Hawai'i campus
- Work with the Advisory Board to continue to meet the needs of employers
- Continue to work with federal and state agencies in service learning and internships
- Complete articulation agreements with UHH, UHM, and OSU

### Part IV. Resource Implications (physical, human, financial)

We are requesting the following items to provide instructors with adequate technological teaching tools. At present room 103, which is used extensively for teaching by both

Forest TEAM and liberal arts faculty, has no computer access. We plan to equip it with a computer system and peripheral:

1 Elmo	\$2,500
Complete computer system	\$5,000
2 replacement bulbs	\$800
TOTAL	\$8,300