

HAWAII COMMUNITY COLLEGE COMPREHENSIVE PROGRAM REVIEW REPORT

FIRE SCIENCE

November 18, 2011

Assessment Period: July 1, 2009 to June 30, 2011

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Program Review at Hawai'i Community College is a shared governance responsibility related to strategic planning and quality assurance. It is an important planning tool for the college budget process. Achievement of Student Learning Outcomes is embedded in this ongoing systematic assessment. Reviewed by a college wide process, the Program Reviews are available to the college and community at large to enhance communication and public accountability.

**HAWAII COMMUNITY COLLEGE
COMPREHENSIVE PROGRAM REVIEW
FIRE SCIENCE PROGRAM**

**Part I: Hawaii Community College
2011 Instructional Annual Report of Program Data
Program Introduction**

The Fire Science Program prepares individuals with the academic knowledge for entry employment in the Fire Service field as well as meeting the needs of in-service professionals.

Upon completion of this program, students will have the knowledge to prepare for a career with federal, state, and local fire and emergency service agencies, with an emphasis on Structural Fire Fighting, Wildland Fire Suppression, Hazardous Materials Incidents, Fire Prevention and Investigation, Fire Management and Administration, and Incident Command System.

After earning the Associate in Science (A.S.) Degree, students have the opportunity to pursue a Bachelor's Degree in Fire Administration from Colorado State University through distance learning.

Health and physical requirements vary with different employers in the Fire Service field, so prospective students should seek advice before enrolling.

Part I: Program Quantitative Indicators

Overall Program Health: Cautionary

Majors Included: FS

Demand Indicators	Program Year			Demand Health Call
	08-09	09-10	10-11	
1 New & Replacement Positions (State)	0	78	85	Unhealthy
2 New & Replacement Positions (County Prorated)	0	11	14	
3 Number of Majors	0	45	92	
4 SSH Program Majors in Program Classes	0	321	666	
5 SSH Non-Majors in Program Classes	435	279	156	
6 SSH in All Program Classes	435	600	822	
7 FTE Enrollment in Program Classes	15	20	27	
8 Total Number of Classes Taught	7	9	11	

Efficiency Indicators		Program Year			Efficiency Health Call
		08-09	09-10	10-11	
9	Average Class Size	20.7	22.2	24.9	Cautionary
10	Fill Rate	83%	83%	90%	
11	FTE BOR Appointed Faculty	0	0	0	
12	Majors to FTE BOR Appointed Faculty	0	0	0	
13	Majors to Analytic FTE Faculty	0	45	74.9	
13a	Analytic FTE Faculty	0.8	1	1.2	
14	Overall Program Budget Allocation	\$40,703	\$52,810	\$55,260	
14a	General Funded Budget Allocation	\$40,703	\$47,423	\$55,260	
14b	Special/Federal Budget Allocation	\$0	\$5,387	\$0	
15	Cost per SSH	\$94	\$88	\$67	
16	Number of Low-Enrolled (<10) Classes	0	0	0	

Effectiveness Indicators		Program Year			Effectiveness Health Call
		08-09	09-10	10-11	
17	Successful Completion (Equivalent C or Higher)	85%	81%	89%	Cautionary
18	Withdrawals (Grade = W)	2	1	3	
19	Persistence (Fall to Spring)	0%	70%	75%	
20	Unduplicated Degrees/Certificates Awarded	0	3	4	
20a	Degrees Awarded	0	1	3	
20b	Certificates of Achievement Awarded	0	3	1	
20c	Academic Subject Certificates Awarded	0	0	0	
20d	Other Certificates Awarded	0	0	0	
21	Transfers to UH 4-yr	0	0	0	
21a	Transfers with credential from program	0	0	0	
21b	Transfers without credential from program	0	0	0	

Distance Education: Completely On-line Classes		Program Year		
		08-09	09-10	10-11
22	Number of Distance Education Classes Taught	0	0	0
23	Enrollment Distance Education Classes	0	0	0
24	Fill Rate	0%	0%	0%
25	Successful Completion (Equivalent C or Higher)	0%	0%	0%
26	Withdrawals (Grade = W)	0	0	0
27	Persistence (Fall to Spring Not Limited to Distance Education)	0%	0%	0%

Perkins IV Core Indicators 2009-2010		Goal	Actual	Met
28	1P1 Technical Skills Attainment	90.05	60.00	Not Met
29	2P1 Completion	44.50	20.00	Not Met
30	3P1 Student Retention or Transfer	55.50	82.61	Met
31	4P1 Student Placement	50.50	0	Not Met
32	5P1 Nontraditional Participation	16.00	7.50	Not Met
33	5P2 Nontraditional Completion	15.10	0.00	Not Met

Part II. Analysis of the Program

Strengths

The Fire Science Program was given provisional approval in the spring of 2009 by the University of Hawaii Board of Regents.

The demand for enrollment into the Fire Science program continues to grow. For the fall 2011 semester we have 117 students who have declared Fire Science as their major, with Hawaiian and Pacific Islanders making up 33% of the program. Our partnership with the Hawaii Fire Department (HFD) has allowed us to offer a Fire 101 Essentials Lab course which allows our students hands-on experience using the facilities at the Central Fire Station with no charge to the college.

This past summer 6 students were hired as firefighters by the U.S. Forest Service (USFS) through the Student Temporary Employment Program (STEP). The USFS plans to continue this program, and is expected in March 2012 to recruit students for the summer 2012 season.

In May 2011, 3 students with an Associate in Science, Fire Science degree graduated.

We continue to have Hawaii Fire Department personnel enrolled in the program who are pursuing degrees which will enhance their promotion potential within the department.

A permanent Fire Science Instructor/Program Coordinator was hired in January 2011.

We continue to upgrade the Fire Science curriculum by deleting and adding fire science courses as needed.

Weaknesses

The Fire Science Program is still a new program, and there is insufficient data to properly analyze the program. We are currently developing a cadre of qualified Lecturers to provide for the increase demand in courses taught.

Each semester we have to look for available classroom space for the Fire Science program. We have been using the PB-5, Room 1 facility located with the Nursing Program, but when they move to the Manono Campus this will have an impact on the program. The majority of classes are currently taught during the evening hours when classrooms are more readily available.

No Distance Education Classes were taught.

Part III. Action Plan

We will continue to network with the various federal, state and local fire agencies ensuring the college will provide a pool of well qualified applicants. Plan to evaluate the curriculum and make adjustments to ensure a high quality education. Maintain membership in professional organizations to include: the National Fire Protection Association (NFPA), Big Island Wildfire Coordination Group, Hawaii Fire Chief's Association, and the California, Nevada, and Hawaii Fire Council.

Assessment of Student Learning Outcomes will be assessed over a Five Year period beginning fall 2012. Artifacts will be collected and then assessed. See assessment plan below. Plan to develop a Five Year Comprehensive Assessment Plan for the Fire Science Program.

Try to establish a Bachelor of Science in Fire and Emergency Services Administration Degree program at the University of Hawaii, Hilo or Hawaii Community College. Currently the AS in Fire Science Degree is the highest level of education in the State of Hawaii for fire and emergency services. Having a local program designed to meet the needs of the State of Hawaii would be a great asset rather than continuing a distance learning program with Colorado State University.

Part IV. Resource Implications

Hawaii Community College hired a Fire Science Instructor/Program Coordinator 1.0 FTE with an effective date of January 1, 2011.

FY 10-11 budget:

General Funds of: \$ 55,260.00

Federal Funds*: \$ 0.00

Program Student Learning Outcomes

Upon successful completion of the Fire Science program, students are prepared to:

1. Meet the minimum academic training requirements of the National Fire Protection Association's (NFPA) Standard 1001, Standard for Fire Fighter Professional Qualifications (Fire Fighter I).
2. Perform as a fully qualified wildland firefighter in accordance with National Wildfire Coordinating Group PMS 310-1 standards.
3. Utilize the Incident Command System to manage a wide variety of planned and un-planned incidents.
4. Demonstrate knowledge of modern fire service strategies, tactics, and management for both structural and wildland fire incidents.
5. Meet the requirements for National Fire Protection Association's (NFPA) 472, Standard for Professional Competence of Responders to Hazardous Materials Incidents for the *Awareness* and *Operational Levels*.
6. Apply the principles of interpersonal communication, cooperative teamwork, supervision and management for leadership in the fire service.
7. Apply the theoretical principles of the chemistry of fire, and hydraulics to solve water supply problems.

Matrix of Student Learning Outcomes by Course

Course	SLO 1	SLO 2	SLO 3	SLO 4	SLO 5	SLO 6	SLO 7
Fire 101	X		X	X			X
Fire 101L	X						
Fire 151		X	X				
Fire 153		X	X			X	
Fire 156			X	X		X	
Fire 157		X					X
Fire 202							X
Fire 207			X	X	X		
Fire 210			X	X		X	
Fire 212				X		X	
Fire 215	X	X	X	X			
Fire 217				X		X	

Five Year Artifact Selection Plan

- **Fall 2012 – Artifact to assess SLO # 1 collected, to be assessed in Spring 2013**
- **Fall 2013 – Artifact to assess SLO # 2 collected, to be assessed in Spring 2014**
- **Fall 2014 – Artifact to assess SLO # 3 collected, to be assessed in Spring 201**
- **Fall 2015 – Artifact to assess SLO # 7 collected, to be assessed in Spring 2016**
- **Spring 2013 – Artifact to assess SLO # 4 collected, to be assessed in Fall 2013**
- **Spring 2014 – Artifact to assess SLO # 6 collected, to be assessed in Fall 2014**
- **Spring 2015 – Artifact to assess SLO # 5 collected, to be assessed in Fall 2015**

Part II:

A. Program Effectiveness

1. The Fire Science Program was given provisional approval by the University of Hawaii, Board of Regents in March, 2009. This is the first Comprehensive Program Review. The Fire Science Program is a four-semester program which prepares individuals for entry employment in the Fire Service field as well as meeting the needs of the in-service professionals. Emphasis is placed on the basic areas of firefighter safety: Structural Fire, Wildland Fire Control, and Management and Administration. Students completing the program may earn a Certificate of Achievement (34 credits), or an Associate in Science Degree (61 credits). The Program will provide a wide range of Fire Science courses to include: Firefighter Safety, Wildland Fire, Structural Fire, Hazardous Materials, and Incident Management System.

Upon completion of this program the student will demonstrate knowledge and skills required to respond appropriately to fire and emergency situations at the private, city, state, or federal level with emphasis in one or more of the following areas:

- Wildland Fire Fighting
- Structural Fire Suppression
- Hazardous Materials Handling
- Prevention and Investigation
- Incident Command System

The Fire Science Program meets the College's mission by:

- Educating students for employment with agencies that serve the community.
- Providing the skills necessary to succeed in a highly competitive yet rewarding career in the fire service.
- Students are trained that as firefighters they are public servants who are expected to protect natural and cultural resources.
- Students are kept abreast of the latest strategies, tactics, and technologies used in the fire service.
- Provides in-service professionals the opportunities to further their education and promotion potential.

2. As a result of a five year review of the program and preparing to write this program review, summarize:

a. The Fire Science program has made several changes in the curriculum for a variety of reasons. The Fire Science Advisory Board approved the following changes to the curriculum:

- We added Fire 101L, which is a lab for the Fire 101 course. The Hawaii Fire Department has allowed us the use of the Central Fire Station at no cost to the college.
- Replaced Physics 100 with Biology 100, Human Biology. Since most firefighters are first responders with some Emergency Medical Response, understanding how the body works will better prepare them for certification.
- We provided students with several optional classes based on whether the student planned upon graduation to pursue a Bachelors Degree from Colorado State University.

- b. No changes were made based on assessment results.
c. No other pertinent information.

3. Program Effectiveness Strengths and Weakness.

S1. Continue to establish a close working relationship with members of the Fire Science Advisory Board, who are potential employers of students graduating with a Fire Science Degree. The partnership with the Hawaii Fire Department has allowed the college to offer the Fire 101Lab course in which students are able to have hands-on experience using the equipment located at the Central Fire Station, with no cost to the college.

S2. Continue to work with the United States Forest Service, Region 6 with the Student Temporary Employment Program (STEP). Under STEP, students from HawCC find employment opportunities on the mainland as wildland firefighters.

S3. An Articulation Agreement with Colorado State University allows students graduating with an Associate in Science degree to continue their education with the opportunity to obtain a Bachelors of Science in Fire Administration degree by distance learning.

W1. Each semester we try to find classroom space to teach the fire science courses. We have been using PB-R room 1, but when the Nursing Unit leaves for the Manono Campus, this will have a significant impact. The Fire Science program needs 2 identified classrooms.

W2. There is a need to establish an Internship Program with the Hawaii Fire Department. Liability issues are the major roadblock.

W3. We need to establish a Bachelor of Science degree in Fire and Emergency Response Administration in the State of Hawaii. If a program were offered locally, there would be considerable interest for entry level and in-house professionals to obtain this degree.

4. Discuss the progress the program has made in meeting the goals set in the last Comprehensive Program Review.

This is the first Comprehensive Program Review since the program was given Provisional Approval by the University of Hawaii, Board of Regents.

5. List the program's top 3 goals/plans for the next Comprehensive Review period. Briefly describe evidence that supports these goals/plans.

1. Establish Fire 293, this would be an Internship Course with the Hawaii Fire Department. This course would be available to seniors who were about to graduate. Currently the biggest obstacle is liability issues. If the student were injured, who is responsible? I believe that this issue can be resolved.

2. Establish a Bachelor of Science in Fire and Emergency Services Degree program at either UHH or HawCC. Hawaii will continue to experience a wide variety of fire, natural and man-made emergency incidents. Currently the HawCC Fire Science program is the highest level of formal education in the State of Hawaii to deal with this subject. Although we do have an Articulation Agreement with Colorado State University, we need to have a program in the State of Hawaii designed for the needs of the State.

3. Establish 2 identified classrooms for Fire Science. Currently we have to look for available classroom space each semester. Fortunately we have been able to use the PB-5, Room 1 classroom extensively. However, once the Nursing Department moves to the Manono Campus, that facility will no longer be available. Fire Science currently teaches most of its courses during the evening hours. There are some possible solutions to this issue. Maybe there would be space at Hale Aloha with the Nursing Department, or the new portable building if they are vacated by the Nursing Department.

B. Action Plan for Program Improvement: Complete Tables 1-4 to provide justification for program budget requests

Table 1—Top 3 Non-Cost Items

(examples are given in *italics*; delete & replace with Program's items)

*Strengths/Weaknesses are numbered (S1, S2, S3; W1, W2, W3) and taken from A.3

Task:	Academic yr.	Who is responsible	Justifications	
			How does it improve program effectiveness?	Addresses which strength or weakness*
<i>1 Establish Fire 293, Internship course with Hawaii Fire Department</i>	<i>2013-14</i>	<i>Program Coord.</i>	<i>Provide students with hands-on experience. Students and potential employer get to know each other.</i>	<i>W2</i>
<i>2 Establish a Bachelors of Science in Fire and Emergency Services degree program.</i>	<i>Fall 2013</i>	<i>Program Coord.</i>	<i>Provide students the opportunity to continue their education with a locally administered program.</i>	<i>W3</i>
<i>3. Establish STEP with USFS Region 5</i>	<i>Fall 2012</i>	<i>Program Coord.</i>	<i>This would provide greater employment opportunities for students.</i>	<i>S2</i>

Table 2 —Prioritized Top 3 Cost Items (“G” funded requests only)

(examples given in *italics*; delete & replace with Program’s items)

*Budget Categories: P=Personnel; S1x=College Discretionary Fund; SE=Supplies Enhanced;
Eq=Equipment (>= \$5K)

**Strategic Outcomes Goals and Performance Measures are: A1.1, B4., C1., D3., E2., etc.

Priority	\$ amount & budget category* Except R/M	Justifications		If currently grant funded, please explain: put date when funding ends and indicate HawCC commitment to support, if any
		Best fits which Action Strategy in the Strategic Plan and how? If it doesn’t match to any of the existing Action Strategy, you may write a new one for recommendation.	Addresses which strength or weakness?	
<i>None</i>				

Table 3.—Repair and Maintenance

Nature of Problem	Describe Location: e.g. Building(s) & Room(s)
None	

Table 4—Equipment Depreciation, if applicable

Key to abbreviations:

CP=Controlled Property w/item value \$1K-\$5K

E=equipment w/item value >\$5K

Program Assigned Equipment (E) and Controlled Property (CP) (List in order of chronological depreciation date)	Category: CP or E	Expected Depreciation Date	Estimated Replacement Cost
None			