HAWAI'I COMMUNITY COLLEGE
ANNUAL PROGRAM REVIEW (APR)

Fire Science Program

Date January 18, 2019

Review Period
July 1, 2017 to June 30, 2018

Initiator: Lucy Jones
Writer(s): Jack M. Minassian

Program/Unit Review at Hawai'i Community College is a shared governance responsibility related to strategic planning and quality assurance. Annual and 3-year Comprehensive Reviews are important planning tools for the College's budget process. This ongoing systematic assessment process supports achievement of Program/Unit and Institutional Outcomes. Evaluated through a college-wide procedure, all completed Program/Unit Reviews are available to the College and community at large to enhance communication and public accountability. Please see http://hawaii.hawaii.edu/files/program-unit-review/

Please remember that this review should be written in a professional manner. Mahalo.

PART 1: PROGRAM DATA AND ACTIVITIES

Program Description (required by UH System)

Provide the short description as listed in the current catalog.	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, Emergency Medical Technician, 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.

Comprehensive Review information (required by UH System)

Provide the year and URL for the location of this program's last Comprehensive Review on the HawCC Program/Unit Review website: http://hawaii.hawaii.edu/files/program-unit-review/	
Year	2015
URL	http://hawaii.hawaii.edu/files/program-unit-review/docs/2015_fs_comprehensive_program_review.pdf
Provide a short summary of the CERC's evaluation and recommendations from the program's last Comprehensive Review. Discuss any significant changes to the program that were aligned with those recommendations but are not discussed elsewhere in this report.	1. The program's plans for the future are well thought-out and explained. 2. All budget and other resource asks are reasonable and well-described. 3. The report lacked detailed and comprehensive analysis of the program's outcomes-based assessment data. In response to item #3, I continue to work with Ms. Reshela DuPuis, Institutional Assessment Coordinator to address this issue.

ARPD Data: Analysis of Quantitative Indicators (required by UH System)
Program data can be found on the ARPD website: http://www.hawaii.edu/offices/cc/arpd/

==**Please attach a copy of the program's data tables**==
==**and submit with this Annual Program Review (APR).**==

Analyze the program's ARPD data for the review period. Describe, discuss, and provide context for the data, including the program's health scores in the following categories:	

Demand
 	
Cautionary
	The primary reason for a Cautionary Health Call is limiting employment opportunities to the Hawai`i Fire Dept., and CIP codes for positions that are not entry level. For example, Fire Inspectors requires years of experience before being promoted from within the agency.
	
	    • The Program CIP for Fire Science is 43.0203, under that CIP are the following SOC:
	        33-2021 Municipal Fire Fighting and Prevention Supervisor
	        33-2011 Firefighters
	        33-2022.00 Forest Fire Inspectors and Prevention Specialists
	
	        Only the Firefighters is an entry level position. All other positions are promoted from within the departments after years of experience.
	
	        Our students have found employment as Wildland Firefighters. However, the CIP code for Forest Firefighters is 43.0206, but the college does not use that code.
	
	Our students have found employment with Hawai`i Volcanoes National Park, Federal Fire (Department of Defense), U.S. Forest Service on the mainland, and one of my students was just employed as a wildland firefighter for the State of Utah.  The Hawai`i Fire Department is potentially the largest employer of our students, but not the only agency.
	
	The demand for firefighters will continue to grow as the population of the Big Island continues to increase.
	
	According to the ARPD, new and replacement positions is 22. However, there is currently a recruit class of 20 with another recruit class of 20 to be filled from the last vacancy announcement. I have been informed that the HFD will advertise another recruitment class sometime this year.

Efficiency Unhealthy	Unhealthy – The fill rate of 59.5% to Majors to FTE BOR Appointed Faculty was 94. *This from the ARPD. I will lower the expected classroom size in order to have a higher fill rate.* For the fall semester we need to provide two sections for our introductory courses to accommodate student demand Currently there is 1 FTE BOR approved faculty. The FS program has 11 Lecturers to help deliver the program. The Tenure and Promotion Committee (TPRC) meeting of February 12, 2016 stated "The committee recognizes the need to hire additional full-time faculty to meet the needs of the growing Program". The Fire Science program started at the Palamanui campus. Due to the lack of public awareness there were 5 students enrolled. This accounts for the Unhealthy vs the Cautionary from the previous year.
Effectiveness Cautionary	Last year the Effectiveness was Healthy. The current ARPD is not accurate. In May 2018, 13 AS Degrees in Fire Science were awarded, which accounted for 20% of all the AS degrees awarded by the college. 15 CA degrees were awarded. 90% of students received a grade of C or higher. 3 students transferred to UH 4-yr even though there is no higher Fire Science program offered. I have experienced a certain decline in the number of FS majors after each fall semester. Some students enroll in the Fire Science program with a perception of a firefighter from TV and the movies. At the beginning of the fall semester I give my students a reality check of what it takes to become a firefighter. Once enrolled, they realize the FS program is an academically challenged major.

	After the fall semester, enrollment tends to levels out for the remainder of semesters.
Overall Health Cautionary	The Fire Science program is now the 2nd largest program at HawCC. The FS program is a Healthy program due the number of Majors and student success. The Quantitative Indicators need to be adjusted to reflect reality. As mentioned above, the FS program accounted for 20% of all the AS degrees awarded in May 2018. The Fire Science program continues to attract new students, and in-house professionals. Our graduate rates, student employment, and the program has a positive reputation and support among the various fire service agencies. In the future some professions may be eliminated and others created, but there will always be a need for police and firefighters. The 190 Fire was 18,000 acres and is now the largest fire in the State of Hawai`i history. Due to climate change, fires are increasing in size and frequency.
Distance Education	N.A.
Perkins Core Indicators (if applicable)	1P1- Met. Goal 92.92, Actual 93.33 2P1- Not Met. Goal 51.51, Actual 42.22. The Fire Science program is a challenging one, which is not easy to obtain. 3P1 – Not Met. Goal 81.81, Actual 74.6. The Fire Science program is challenging, and after students enroll in the program they realize what it takes to be a firefighter. 4P1 – Met. Goal 64.51, Actual 65.79. 5P1 – Not Met. Goal 23.00 Actual 7.21. It is difficult to attract women in the fire service. I attend a number of job fairs at local high schools and try to encourage women to enroll in the FS program. There are currently 5 women enrolled as FS majors this fall semester. 5P2 – Not met. Goal 22.22, Actual 11.54. Women who are in the FS program and who apply to the Hawai`i Fire Dept. are hired almost immediately. I encourage students to complete their degree.

What else is relevant to understanding the program's data? Describe any trends, internal/external factors, strengths and/or challenge that can help the reader understand the program's data but are not discussed above.	The public continues to demand a well-educated and professional fire service. When I first joined the NPS there were no educational requirements for Fire Management Officer. Now a Bachelor of Science degree in fire or natural science is mandatory. HFD recruits were in training for 3 months before assigned to a duty station. They are now in training for 12 months. It is just a matter of time before BS degree is required for top administrative positions. Demand in the fire service is: • The population of the Big Island continues to grow. • That population is also aging and will place a greater demand for more Emergency Medical Services. • The HFD recently purchased an additional ambulance for the Puna District. This has reduced the emergency response time and provide better customer service. • The U.S. Department of Labor states employment of Emergency Medical Technicians (EMTs) and Paramedics is projected to grow 24 percent from 2014 to 2024, much faster than the average for all occupations. • Although technology will continue to assist the fire service. There will always be a need for an **individual** to perform the many duties firefighters provide as first responders. Firefighters are not likely to be replaced with robotics, drones, etc. • The Big Island is the only island with Volunteer Fire Stations. These stations are slowly being replaced with full time 24/7 firefighters. • Recent fires in California required 11,000 firefighters. *Of which some came from our program.* The Demand for firefighters will continue to increase.

PROGRAM ACTIVITIES

Report and discuss all major actions and activities that occurred in the program during the review period, including the program's meaningful accomplishments and successes. Also discuss the challenges or obstacles the program faced in supporting student success and explain what the program did to address those challenges.

For example, discuss:

- Changes to the program's curriculum due to course additions, deletions, modifications (CRC, Fast Track, GE-designations), and re-sequencing;
- New certificates/degrees;
- Personnel and/or position additions and/or losses;
- Other changes to the program's operations or services to students.

1. We taught Emergency Medical Technician (EMT) at the 390 hr. level in the fall 2017 semester using the same curriculum as the KCC EMT course. KCC continued to block our approval by the Dept. of Health. Midway through the semester we had to transfer our students to KCC in order for them to take the National Registry EMT test and get certification from the Dept. of Commerce and Consumer Affairs. In May I had a one hour conversation with Mr. John Morton to explain why I wanted to add EMT to the FS curriculum. Since that time the Dept. of Health has changed the EMT training curriculum. Starting in the fall of 2018 the FS program plans to have the National Registry EMT class and clinical approved by the DOH, and added to the FS curriculum.
2. Started the FS program at the Palamanui Campus. Enrolled Lecturers, established classroom space and developed the support needed to start teaching.
3. No new degrees.
4. Three Lecturers were hired for teaching FS classes at the Palamanui Campus in fall of 2017.
5. The FS curriculum was modified by submitting for approval several course additions and deletions to be effective in fall 2019. Chemistry 100 and 100L and Biology 142 and 142L were deleted. Biology 100 and 100L were added. These changes were designed to better prepare students for EMT training. EMT credits were reduced from 13 to 12.1

The total number of credits for the AS degree in FS has been reduced from 75 to 70.1. effective fall 2019.

The reason it is a decimal point is because I wanted to align our EMT course with KCC's.

PROGRAM WEBSITE

Has the program recently reviewed its website? Please check the box below that best applies and follow through as needed to keep the program's website up-to-date.

☐ Program faculty/staff have reviewed the website in the past six months, no changes needed.

☐ Program faculty/staff reviewed the website in the past six months and submitted a change request to the College's webmaster on __2/28/19_____ (date).

☐ Program faculty/staff recently reviewed the website as a part of the annual program review process, found that revisions are needed, and will submit a change request to College's webmaster in a timely manner.

> *Please note that requests for revisions to program websites must be submitted directly to the College's webmaster at*
> http://hawaii.hawaii.edu/web-developer

PART 2: PROGRAM ACTION PLAN

AY18-19 ACTION PLAN

Provide a detailed narrative discussion of the program's overall action plan for AY18-19, based on analysis of the Program's AY17-18 data and the overall results of course learning outcomes assessments conducted during the AY17-18 review period.
This Action Plan should identify the program's specific goals and objectives for AY18-19 and must provide benchmarks or timelines for achieving each goal.

The Fire Science program's action plan for AY 17-18 will be the following:

1. **Establish Emergency Medical Technician training.**
2. **Obtain EMT equipment for the Palamanui Campus.**
3. **Provide the fire engine with a sheltered area to park.**
4. **Identify classroom space.**
5. **Establish a Bachelor of Science degree in Fire and Emergency Service Administration with the UHH.**

ACTION ITEMS TO ACCOMPLISH ACTION PLAN

For each Action Item below, describe the strategies, tactics, initiatives, innovations, activities, etc., that the program plans to implement in order to accomplish the goals described in the Action Plan above.

For each Action Item below, discuss how implementing this action will help lead to improvements in student learning and their attainment of the program's learning outcomes (PLOs).

Action Item 1: Working with the HawCC Administration to formally institutionalize Emergency Medical Technician (EMT) training as part of the Fire Science program's curriculum starting in Fall 2018 semester.

I will continue to elicit support from Honolulu CC Fire Science program, my Fire Science Advisory Board, and the Hawai`i State Fire Chief's Association, in obtaining support from the Dept. of Health to approve our curriculum.

Establishing EMT training will greatly enhance student employment opportunities, and serve the community.
Note: It is difficult to find qualified faculty to teach EMT due to low pay and expertise required to teach a comprehensive course.

Action Item 2:
Purchase equipment using Perkins funding that are necessary to teach EMT at Palamanui Campus. There is also a need to find storage for equipment for the Fire Science program. Program is working with administration to resolve this issue.

Action Item 3:
Working with Mr. Richard Cowan, Apprentice Program Coordinator to provide shelter for the $250,000.00 fire engine that the Honolulu Fire Dept. donated to the college. The engine is currently parked outside, and exposed to the elements, and if it not placed in a protected area it will deteriorate over time. Program is working with administration to resolve this issue.

The Apprentice Program has developed a design, location, material list, and an estimated budget of $16,222.65 for the project. We are currently waiting for UH Systems response, or we could park the engine it in Bldg. 386A. *I need administrative support to house the engine in Bldg. 386A This issue could be resolve by working in cooperation of the Apprentice Program with Administration support.*

Action Item 4:

Every semester the Fire Science program needs the assistance of the Nursing, the Math Dept. and the UHH to provide classroom space. Every fall we have different classrooms located on both campuses. The Social Science Dept. does not have adequate assigned classroom space. In the past there have conflict of schedules with other classes.

The Fire Science program is the 2nd largest program on campus, and should have certain classrooms identified. Most courses are taught in the evening when classrooms are vacant, and makes for more efficient use of space. Program is working with administration to resolve this issue.

Action Item 5:

There is a need for a Bachelor of Science in Fire and Emergency Service Administration in the State of Hawai`i. I had a meeting with the UHH Vice Chancellor for Academic Affairs. He admitted that the program would pay for itself and funding was not an issue, but there was a reluctance to start a new program. With admissions down, a new program is what is needed.

I will continue to contact UHH faculty to see if there is support. Program is working with administration to resolve this issue.

RESOURCE IMPLICATIONS

NOTE: General "budget asks" are included in the 3-year Comprehensive Review. Budget asks for the following three categories only may be included in the APR: 1) health and safety needs, 2) emergency needs, and/or 3) necessary needs to become compliant with Federal/State laws/regulations.

BUDGET ASKS

For budget ask in the allowed categories (see above):	
Describe the needed item(s) in detail.	N.A.
Include estimated cost(s) and timeline(s) for procurement.	
Explain how the item(s) aligns with one or more of the strategic initiatives of 2015-2021	

Strategic Directions: http://hawaii.hawaii.edu/sites/default/files/docs/strategic-plan/hawcc-strategic-directions-2015-2021.pdf	

PART 3: LEARNING OUTCOMES ASSESSMENTS

For all parts of this section, please provide information based on CLO (course learning outcomes) or PLO (program learning outcomes) assessments conducted in AY17-18.

Evidence of Industry Validation and Participation in Assessment (<mark>for CTE programs only</mark>)
Provide documentation that the program has submitted evidence and achieved certification or accreditation (if applicable) from an organization granting certification/accreditation in the program's industry/profession. If the program/degree/certificate does not have a certifying body, you must submit evidence of the program's advisory committee's/board's recommendations for, approval of, and/or participation in the program's assessment(s).
<mark>Please attach copy of industry validation for the year under review.</mark>

Courses Assessed

List all program courses assessed during AY17-18, including Initial and "Closing the Loop" assessments.			
Assessed Course Alpha, No., & Title	**Semester assessed**	**CLOs assessed (CLO#s)**	**PLO alignment (PLO#s)**
Fire 153	Spring 17	CLO #1. Understand what is required to establish an effective wildland fire prevention program.	2,3,4,6
		CLO# 2. Develop the skills necessary to perform the duties of a Squad Boss	2,3,4,6
		CLO #3. Comprehend the fundamentals of portable pump operations and water use.	6,7
Fire 207	Spring 17	CLO# 1. Identify Hazardous materials from a variety of sources and understand their properties and behavior	5
		CLO# 2. Size-up, analyze, and develop the appropriate response to HAZMAT Incident at the Operations	5

		Level.	
		CLO #3. Establish a perimeter, decontamination entry and exit points, and protect the public at a HAZMAT Incident.	5
Fire 210 Fire Administration		CLO #1. Understand the duties and responsibilities of a Fire Administrator.	4,6
		CLO# 2. To resolve personnel issues in a fair and legal manner.	4,6
		CLO #3. Knowledge of modern fire service management principles.	4,6
"Closing the Loop" Assessed Course Alpha, No., & Title	**Semester assessed**	**CLOs assessed (CLO#s)**	**PLO alignment (PLO#s)**
Fire 153 Advanced Wildland Firefighting	Spring 18	CLO #1Understand what is required to establish an effective wildland fire prevention program.	2,3,4,6
		CLO#2 Develop the skills necessary to perform the duties of a Squad Boss.	2,3,4,6
		CLO#3 Comprehend the fundamentals of portable pump operations and water use.	6,7
Fire 207 Hazardous Materials Awareness/Operations	Spring 18	CLO#1 Identify hazardous materials from a variety of sources and understand their properties and behavior.	5
		CLO#2Size-up, analyze and develop the appropriate response to HAZMAT incident at the Operations Level.	5
		CLO#3 Establish a perimeter, decontamination entry and exit points,	5

		and protect the public at a HAZMAT incident.	
Fire 210 Fire Administration		CLO#1 Understand the duties and responsibilities of a fire administrator.	4,6
		CLO#2 To resolve personnel issues in a fair and legal manner.	4,6
		CLO#3 Knowledge of modern fire service management principles.	4,6

Assessment Strategies

For each course assessed in AY17-18 listed above, provide a brief description of the assessment strategy, including:

- a description of the type of <u>student work or activity assessed</u> (e.g., research paper, lab report, hula performance, etc.);
- a description of <u>how student artefacts were selected for assessment</u> (e.g., the assessment included summative assignments from all students in the course, <u>OR</u> a sample of students' summative assignments was randomly selected for assessment based on a representative percentage of students in each section of the course);
- a brief discussion of the <u>assessment rubric/scoring guide</u> and the criteria/categories and standards used in the assessment.

Course Alpha/#: Fire 153
Type of work: Final Exam
Assessor: Faculty Member
Method: All students' artefacts will be assessed.

Course Alpha/#: Fire 207
Type of work: Final Exam
Assessor: Faculty Member
Method: All students' artefacts will be assessed.

Course Alpha/#: Fire 210
Type of work: Final Exam
Assessor: Faculty Member
Method: All students' artefacts will be assessed.

Expected Levels of Achievement

For each course assessed in AY17-18 listed above, state the standard (benchmark, goal) for student success for each CLO assessed AND the percentage of students expected to

meet that standard for each CLO.

Example: "CLO#1: The standard for student success is that students will answer 80% of the questions on the final exam related to CLO#1 correctly. The expectation is that 85% of students will meet this standard for CLO#1."

Example: "CLO#4: The standard for student success is that students will be able to perform skills associated with CLO#4 with 80% proficiency. The expectation is that 75% of students will meet this standard for CLO#4."

Assessed Course Alpha, No., & Title	Assessed CLO#	Standard for Success	% of Students Expected to Meet Standard
Fire 153 Advanced Wildland Firefighting	1, 2, 3	The National Standard or passing the exam is 70% pass rate.	For HawCC Fire Science, expectation for meeting all CLOs is 80%
Fire 207 Hazardous Materials Awareness/Operations	1, 2, 3	The National Standard or passing the exam is 70% pass rate.	For HawCC Fire Science, expectation for meeting all CLOs is 80%
Fire 210 Fire Administration	1, 2, 3	The National Standard or passing the exam is 70% pass rate.	For HawCC Fire Science, expectation for meeting all CLOs is 80%

Results of Course Assessments

For each course assessed in AY17-18 listed above, provide:
• **a statement of the quantitative results;**
• **a brief narrative analysis of those results.**

Course Alpha/#: Fire 153

CLO #1: 92% of students met or exceeded.
CLO #2: 100% of students met or exceeded.
CLO #3: 100% of students met or exceeded.

CLO #1 Indicates students can improve on their understanding of developing an effective fire prevention program.

CLO #2 Indicates students have a good understanding of the duties required of a Squad Boss.

CLO #3 Indicates students have a good understanding on portable pumps. This score has

improved from 85%.

Course Alpha/#: Fire 207

CLO#1: 100% of students met or exceeded.
CLO#2: 100% of students met or exceeded.
CLO#3: 93% of students met or exceeded.

CLO#1 Students have a good understanding of how to use the Emergency Response Guidebook (ERG).

ClO#2 Students have a good understanding of size-up and the appropriate response to a HAZMAT Incident.

CLO#3 Indicates students have the knowledge to protect the public.

Course Alpha/#: Fire 210

CLO#1: 82% of students met or exceeded.
CLO#2: 82% of students met or exceeded.
CLO#3: 59% of students met or exceeded.

CLO#1 Indicates students can improve on their knowledge of what skills provide for an effective Fire Administrator.

CLO#2 Indicates students need a better understanding of legal issues. This is the first time many students were exposed to understanding the legal system and their responsibilities.

CLO#3 Clearly demonstrates students need to develop a better understanding of modern fire service management principles. This score is down from 100%

Other Comments

Include any additional information that will help clarify the program's course assessment results, successes and challenges.

N.A.

Discuss, if relevant, a summary of student survey results, CCSSE, e-CAFE, graduate-

leaver surveys, special evaluations, or other assessment instruments that are not discussed elsewhere in this report.

N.A.

Next Steps – ASSESSMENT ACTION PLAN for AY18-19

Describe the program's intended next steps to improve student learning, based on the program's overall AY17-18 assessment results.

Include any specific strategies, tactics, activities or plans for improvement in program or course assessment practices, methods or tools, rubrics, schedules, etc.

- **Initiate Assessment for Fire 101 Essentials of Fire Suppression**
- **Initiate Assessment for Fire 151 Introduction to Wildland Fire Control**
- **Initiate Assessment for Fire 157 Intermediate Wildland Fire Behavior**

PART 4: ADDITIONAL DATA

Cost Per SSH <mark>(to be provided by Admin)</mark>
Please provide the following values used to determine the total fund amount and the cost per SSH for your program:

General Funds   = $_____
Federal Funds   = $_____
Other Funds   = $_____
Tuition and Fees   = $_____

External Data*

If your program utilizes external licensures, enter:

Number sitting for an exam   _____
Number passed   _____

<mark>*This section applies to NURS only.</mark>