

HAWAI‘I COMMUNITY COLLEGE PROGRAM ANNUAL REVIEW (APR)

AS in Natural Science (NSCI Program)

Date: 30 November 2017

**Review Period
July 1, 2016 to June 30, 2017**

Initiator: [Pamela Y. Scheffler]

Writer(s): Bernhard Laurich, Ruria Namba, Michelle Phillips, Orlo Steele, Pamela Y. Scheffler

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)

<p>Provide the short description as listed in the current catalog.</p>	<p>This Associate in Science Degree program prepares students to transfer to 4-year institutions in STEM (Science, Technology, Engineering and Mathematics) related fields. Hawai'i Community College offers two ASNS tracks: Biological Science and Physical Science.</p>
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Comprehensive Review information (required by UH System)

<p>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/</p>	
<p>Year</p>	<p>2016</p>
<p>URL</p>	<p>http://hawaii.hawaii.edu/files/program-unit-review/docs/2016_nsci_comprehensive_program_review.pdf</p>
<p>Provide a short summary of the CERC's evaluation and recommendations from the program's last Comprehensive Review.</p> <p>Discuss any significant changes to the program that were aligned with those recommendations but are not discussed elsewhere in this report.</p>	<p>No evaluation received from CERC as of this report.</p>

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).**

a) If you will be submitting the APR in hard copy, print and staple a copy of the data tables to the submission; the icon to print the data tables is on the upper right side, just above the data tables.

OR

b) If you will be submitting the APR in digital form (WORD or PDF), attach a PDF copy of the data tables along with the digital submission; the icon to download the data tables as a PDF is in the upper right of the screen, just above the data tables.

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	Demand is listed as HEALTHY. There was a nearly 38% increase in the number of majors to 57 in the 2016-17 program year; numbers of Native Hawaiian students in the program increased by over 45% (to 22). SSH of program majors has increased.
Efficiency	Efficiency is HEALTHY. The average class size, while still small, has increased to 8.9 with a fill rate of over 70%. Low-enrolled courses declined by nearly 60% to 7.
Effectiveness	Effectiveness is CAUTIONARY. There was a 69% successful completion rate, a drop of 13% from the previous year. Double the number of students withdrew from courses with a W (10 students in 2016-17). Persistence from Fall to Spring rose by over 10% while Fall to Fall persistence declined by approximately 8%. Three students received a degree (a 50% increase from the previous year) and eight students (double the previous year) transferred to a UH 4-year institution. While we still have improvements to make, this young program is improving each year.

Overall Health	The overall health is listed as HEALTHY.
Distance Education	N/A: there currently are no DE ASNS courses.
Perkins Core Indicators (if applicable)	N/A
Performance Funding Indicators (if applicable)	There were three STEM degrees granted, 1/3 to Native Hawaiian students. One Pell recipient was in the program (a puzzling drop of 19 students from the previous year) and eight students transferred to UH 4-year institutions.
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.	<p>Overall College enrollment has decreased, however, the number of NSCI majors continues to increase. Demand for this program is strong despite external factors.</p> <p>We are unable to offer all the courses required for the major because we lack the facilities and the faculty to teach the courses. We do not have a Physics lab space and are unable to offer either of the required physics courses. All of the required chemistry courses are presently taught by a lecturer rather than a full-time faculty, leading to potential instability in the program.</p>

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.

This is a young program and we are still in the process of obtaining facilities to teach all of the required courses on our campus. Up until Fall 2015, we did not have the ability to offer the full sequence to majors of chemistry, biology, or physics on our campus and relied on UH Hilo to set aside seats in their courses for our students. We offered CHEM 161, 161L, CHEM 162 and CHEM 162L for the first time in the 2016-17 year (BIOL 171, 171L, 172 and 172L were filled for the first time in the previous reporting period). We plan to offer PHYS 170, 170L, 171, and 171L when funding becomes available to create a physics lab, in the meantime, we are working with UH-Hilo to allow our students to take their physics courses while still paying Hawai'i CC tuition.

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 _____ (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

AY17-18 ACTION PLAN

Provide a detailed narrative discussion of the program's overall action plan for AY17-18, based on analysis of the Program's AY16-17 data and the overall results of course learning outcomes assessments conducted during the AY16-17 review period.

This Action Plan should identify the program's specific goals and objectives for AY17-18, and must provide benchmarks or timelines for achieving each goal.

Action Item 1:

Advocate for the development of a physics lab at both Manono and Pāalamanui. We will continue to advocate for these labs until the funding is committed and the development of the labs is complete.

Action Item 2:

Advocate for filling the open biology and chemistry instructor positions. We intend to have both positions filled by Fall 2018.

Action Item 3:

Advocate for creating a physics instructor position for the Pāalamanui campus.

Action Item 4:

Align the NSCI courses with ASNS programs across UHCC.

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:

Faculty will continue to discuss and advocate for the laboratory spaces and funding from the Administration. PHYS 170/L and 171/L are required for our majors but cannot be offered through Hawai'i CC until lab space is created.

The ability to offer physics labs on our campuses will address all four PLOs:

NSCI PLO1: Analyze data effectively using current technology.

NSCI PLO2: Communicate scientific ideas and principles clearly and effectively.

NSCI PLO3: Analyze and apply fundamental mathematical, physical, and chemical concepts and techniques to scientific issues

NSCI PLO4: Apply fundamental concepts and techniques in their chosen concentration.

Students will have the opportunity to use current technology, write lab reports on their experiences, analyze data and apply concepts and techniques in physics.

Action Item 2:

Faculty will work with HR and Administration to advocate for the advertising and hiring of these two positions. Faculty will sit on Selection Committees and help to move the process forward.

CHEM 161/L and 162/L are required for our majors but we have to rely on lecturers to teach these required courses, which leads to uncertainty on the ability to offer them in future years. There are a number of biology courses that are now taught exclusively by lecturers because there are not enough FT faculty to cover the majority of the science courses that are either required or electives for the program.

The ability to continuously offer biology and chemistry and the associated labs, taught by FT faculty on our campuses will address all four PLOs:

NSCI PLO1: Analyze data effectively using current technology.

NSCI PLO2: Communicate scientific ideas and principles clearly and effectively.

NSCI PLO3: Analyze and apply fundamental mathematical, physical, and chemical concepts and techniques to scientific issues

NSCI PLO4: Apply fundamental concepts and techniques in their chosen concentration.

Students will have the opportunity to use current technology, write lab reports on their experiences, analyze data and apply concepts and techniques in biology and chemistry.

Action Item 3:

Faculty will advocate with the Administration for the creation of an additional science (Physics) position for the Pāalamanui campus. At present there is no one to teach physics, even if a lab is created. PHYS 170/L and 171/L are required for our majors, but we do not have qualified instructors to teach the courses at the Pāalamanui campus.

The ability to offer physics labs on our campuses will address all four PLOs:

NSCI PLO1: Analyze data effectively using current technology.

NSCI PLO2: Communicate scientific ideas and principles clearly and effectively.

NSCI PLO3: Analyze and apply fundamental mathematical, physical, and chemical concepts and techniques to scientific issues

NSCI PLO4: Apply fundamental concepts and techniques in their chosen concentration.

Students will have the opportunity to use current technology, write lab reports on their experiences, analyze data and apply concepts and techniques in physics.

Action Item 4:

At present, the majority of the UHCC courses offer nearly identical ASNS degrees. Hawaii CC is the one exception to most of the ASNS curriculum. Faculty will collaborate with other UHCC campuses to align our curriculum.

NSCI PLO1: Analyze data effectively using current technology.

NSCI PLO2: Communicate scientific ideas and principles clearly and effectively.

NSCI PLO3: Analyze and apply fundamental mathematical, physical, and chemical concepts and techniques to scientific issues

NSCI PLO4: Apply fundamental concepts and techniques in their chosen concentration.

Having the same curriculum will allow seamless transfer for students throughout the University of Hawaii system.

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.

Provide a brief statement about any implications of or challenges due to the program’s current operating resources.

Until we have all of the lab facilities and resources and qualified faculty, we cannot provide the courses needed for our students to graduate.

In order to make the entire degree program and its courses available to Hawai‘i Community College students, we hope to increase the number of courses that we offer for the ASNS in upcoming years – PHYS 150, 171/172, and the requisite lab courses. Currently, unlike UH-Hilo, the community colleges do not/ are not able to charge their students for laboratory fees, and therefore, our lab supplies must come from our currently available budget. Labs supplies are increasingly expensive, involve perishable and consumable supplies and when new classes are added, the procurement of laboratory supplies is more expensive than it would be to maintain afterward, when we are simply replacing supplies. Much of our budget is spent on running labs that are designed for students outside of the NSCI degree (e.g., pre-nursing), leaving little funding for purchasing laboratory supplies for the courses required for the major. In particular, in order to fully implement the NSCI program HawCC needs to offer PHYS 151L, 170L and 171L (as co-requisites to PHYS 151, 170 and 171). This requires faculty, facility and equipment for East Hawai‘i and West Hawai‘i. The largest expense will be in creating the physics lab facility but the cost of running a laboratory is also not trivial (for example, phasing in a Laboratory for Phys 170L for 12 students working in groups of 2, would require an equipment cost of approximately \$36,000 per semester per campus. A full lab (20 students) would cost approximately \$60,000 in equipment and supplies per campus). The VCAA has indicated that the College will help the department to obtain these funds, but they are not currently part of our operating budget.

We are also unable to run a full schedule of courses because the Manono Biology BSL-2 laboratory does not have a prep room. Lab courses require set-up and take-down of materials for each lab run, as well as the production of chemical solutions, cultures, culture media, and other supplies. Because there is not a dedicated space for this, our lab coordinator must do this in between scheduled labs and labs must be scheduled with longer breaks between them in order to accommodate this use of the space. If we had a prep-room for the lab, we would be able to schedule more labs in the space and accommodate the needs of more students.

The department would be improved if we could supply modern equipment to modernize the experiments we offer. Moving from preserved specimens to reusable models would be a large initial expense but would decrease costs over the long term. We could improve our teaching by providing computing capability in the lab so that students can use e-resources as lab tools for data collection, data mining, online research and simulation. In this way our labs would be modernized and students would be closer to learning to use the tools they will be using in their future places of employment.

In addition, staying current in our field of expertise is particularly important for science faculty. All fields of science (biology, chemistry and physics) are continually changing and it is important for faculty to remain on top of new developments so that they can impart this knowledge to students. Professional development, including membership in at least one professional organization and participation in at least one professional conference annually in the faculty's field of expertise, should be encouraged and funded through the college.

BUDGET ASKS

For budget ask in the allowed categories (see above):	
Describe the needed item(s) in detail.	
Include estimated cost(s) and timeline(s) for procurement.	
Explain how the item(s) aligns with one or more of the strategic initiatives of <u>2015-2021 Strategic Directions</u> : 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 AY16-17.

Evidence of Industry Validation and Participation in Assessment (for CTE programs only)

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).

Please attach copy of industry validation for the year under review.

Courses Assessed

List all program courses assessed during AY16-17, including Initial and "Closing the Loop" assessments.			
Assessed Course Alpha, No., & Title	Semester assessed	CLOs assessed (CLO#s)	PLO alignment (PLO#s)
NO NSCI courses assessed 2016-17.			
<p>When the NSCI program began in 2014-15, there were no regularly scheduled NSCI courses. BIOL 171 & 171L were scheduled for regular offerings at Manono campus starting in Fall 2015, BIOL 172 & 172L in Spring 2016. CHEM 161 & 161L were offered for the first time at Manono in Fall 2016, CHEM 162 & 162L for the first time in Spring 2017. Pāalamanui offerings began in Fall 2017. PHYS 171, 171L, 172, 172L, 151, 151L, 152, & 152L are still not offered at our campus. Because of the new nature of the program and the courses, NSCI faculty opted to schedule course assessment for future dates, giving time for the course curriculum to be worked out and made more permanent.</p>			

Assessment Strategies

For each course assessed in AY16-17 listed above, provide a brief description of the assessment strategy, including:

- a description of the type of student work or activity assessed (e.g., research paper, lab report, hula performance, etc.);
- a description of how student artefacts were selected for assessment (e.g., the assessment included summative assignments from all students in the course, OR 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 assessment rubric/scoring guide and the criteria/categories and standards used in the assessment.

N/A

Expected Levels of Achievement

For each course assessed in AY16-17 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
N/A			

Results of Course Assessments

For each course assessed in AY16-17 listed above, provide:

- a statement of the quantitative results;
- a brief narrative analysis of those results.

N/A

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 AY17-18

Describe the program’s intended next steps to improve student learning, based on the program’s overall AY16-17 assessment results.

Include any specific strategies, tactics, activities or plans for improvement to program or course curriculum or instructional strategies, or changes in program or course assessment practices.

No courses are scheduled to be assessed in AY17-18. Course assessments will begin in AY18-19.

PART 4: ADDITIONAL DATA

Cost Per SSH (to be provided by Admin)

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 _____

***This section applies to NURS only.**

Effectiveness Indicators		Program Year			Effectiveness Health Call
		14-15	15-16	16-17	
16	Successful Completion (Equivalent C or Higher)	76%	81%	69%	Cautionary
17	Withdrawals (Grade = W)	11	5	10	
18	*Persistence (Fall to Spring)	45%	54.5%	64.9%	
18a	Persistence Fall to Fall	20%	32.5%	25%	
19	Unduplicated Degrees/Certificates Awarded Prior Fiscal Year	0	2	3	
19a	Associate Degrees Awarded	0	0	3	
19b	Academic Subject Certificates Awarded	0	0	0	
19c	Goal	-9,999	0	3	
19d	Difference Between Unduplicated Awarded and Goal	-100%	0%	0%	
20	Transfers to UH 4-yr	1	4	8	
20a	Transfers with degree from program	0	0	2	
20b	Transfers without degree from program	1	4	6	
20c	Increase by 3% Annual Transfers to UH 4-yr Goal	0	0	1	
20d	Difference Between Transfers and Goal	0%	0%	700%	

Distance Education: Completely On-line Classes		Program Year			
		14-15	15-16	16-17	
21	Number of Distance Education Classes Taught	2	1	0	
22	Enrollments Distance Education Classes	59	28	N/A	
23	Fill Rate	98%	93%	N/A	
24	Successful Completion (Equivalent C or Higher)	64%	79%	N/A	
25	Withdrawals (Grade = W)	3	1	N/A	
26	Persistence (Fall to Spring Not Limited to Distance Education)	61%	67%	N/A	

Performance Measures		Program Year			
		14-15	15-16	16-17	
27	Number of Degrees and Certificates	0	3	3	
28	Number of Degrees and Certificates Native Hawaiian	0	0	1	
29	Number of Degrees and Certificates STEM	0	3	3	
30	Number of Pell Recipients ¹	13	20	1	
31	Number of Transfers to UH 4-yr	1	4	8	

*Data element used in health call calculation

Last Updated: October 29, 2017

¹PY 16-17; Pell recipients graduates not majors