

HAWAI‘I COMMUNITY COLLEGE ANNUAL PROGRAM REVIEW (APR)

NSCI

Date 17 JANUARY 2019

**Review Period
July 1, 2017 to June 30, 2018**

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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. Hawaii Community College offers two ASNS tracks: Biological Science and Physical Science. For more information, contact Pamela Scheffler by e-mail (pamelays@hawaii.edu).</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>The CERC Evaluators recognized that the program was in its infancy and was faced with many challenges. To complicate matters, NSCI program also supports the AA-Liberal Arts program. Lack of space was identified as a major concern to be addressed in order for the NSCI program to thrive. The CERC Evaluators highly recommended the College commit resources to this program to allow it to grow especially since this is one of a few programs identified as STEM.</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).**

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 CAUTIONARY. There was a small decrease (6%) in the number of majors (from 57 to 53) in the 2017-18 program year; numbers of Native Hawaiian students decreased (from 22 to 18). Overall enrollment for Hawaii CC was lower in 2017, and we believe the decrease in ASNS students is related. SSH of program majors has increased by almost 40%.
Efficiency	Efficiency is CAUTIONARY. The average class size, while still small, has increased to 11 from 9 last year; the small class size is partially due to sections taught through an agreement with UHH where HawCC students take the UHH course through a HawCC alpha. These sections have very low caps, usually only 1-3. The fill-rate dropped to a cautionary level at 61%; this is in part due to some poor planning on the UHH-associated classes (where caps were set much higher than needed in Fall 2017) and partially due to lower enrollment of Palamanui classes. We expect to see these enrollments increase as the community becomes aware of the program. Low-enrolled courses remained steady compared to the previous report. The number of students to BOR faculty (17) fell in the HEALTHY range.

Effectiveness	<p>Effectiveness is UNHEALTHY. There was a 75% successful completion rate, an increase of 6% from the previous year. The number of students who withdrew from courses with a W dropped slightly from the previous year (from 10 to 8 students in 2017-18). Persistence from Fall to Spring dropped by 9% while Fall to Fall persistence increased by 9%; these numbers may be affected by student transfers. No students were awarded a degree, and seven students (nearly equal to the previous year) transferred to a UH 4-year institution.</p> <p>Because we still do not have the ability to teach physics labs on our campus, we expect to see most of our students transfer before they have completed the graduation requirements of the program. At this juncture, we consider transfers (with or without a degree) to constitute student success. While we still have improvements to make, we are a young program and are still adding courses and faculty. We expect to see improvements over the coming years.</p>
Overall Health	The overall health is listed as CAUTIONARY.
Distance Education	Currently only one course is offered via Distance Education (Vidcon). It had an overall enrollment of 14 this year and a 93% successful completion rate.
Perkins Core Indicators (if applicable)	N/A
Performance Funding Indicators (if applicable)	Curiously, there are no degrees and certificates listed, yet there is one STEM degree and certificate listed in the Performance Funding section. Clearly there are errors in the ARPD reporting. All seven of the ASNS student transfers were to a UH 4-year institution.

<p>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>	<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. This has the potential to lead to instability in the program. We do not have a physics lab space and are unable to offer either of the required physics lab courses at either Palamanui or Manono. There is only one science faculty member at the Palamanui campus, and the required chemistry and physics classes and labs need to either be taught from the Manono campus via Vidcon or by a lecturer.</p>
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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. We are one of few STEM programs at Hawaii CC and are crucial to meeting the future needs of STEM employment on Hawaii Island. Although the program is still in a period of early development, we are improving our ability to offer courses and curriculum and are helping the College to meet its STEM performance indicators. Up until Fall 2015, we did not have the ability to offer the full sequence to majors in 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 151, 152, 170, 170L, 171, and 171L when funding becomes available to create a physics lab. In the meantime, we are working with UHH to allow our students to take their physics courses while still paying Hawaii CC tuition.

We hired a tenure track Chemistry Instructor for the Manono campus who started in Fall 2018.

We have received a new position to hire a chemistry/physical sciences instructor at the Palamanui campus which will help with our ability to plan for future course offerings for ASNS students. We plan to hire this faculty member in the 2019-2020 year.

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

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.

Until we have all of the lab facilities and resources and qualified faculty, we cannot provide the courses needed for our students to graduate. PHYS 151/L, 152/L, 170/L and 171/L are required for our majors but cannot be offered through Hawaii CC until lab space is created. Therefore, faculty will continue to discuss and advocate for the laboratory spaces and funding from the Administration.

Our plan is to advocate for the development of a physics lab at both Manono and Palamanui. We will continue to advocate for these labs until the funding is committed and the development of the labs is complete. Students will then have the opportunity to use current technology, write lab reports on their experiences, analyze data and apply concepts and techniques in physics.

We also plan to advocate for filling the three open biology and physical science instructor positions. We intend to have all three positions filled by Fall 2019. Faculty will work with HR and Administration to advocate for the advertising and hiring of these three positions. Faculty will sit on Selection Committees and help to move the process forward.

Faculty will advocate with the Administration for the creation of an additional science (Physical) position for the Palamanui campus. At present there is no one to teach chemistry or physics, even if a lab is created. CHEM 161/L, 162/L, PHYS 151/L, 152/L, 170/L and 171/L are required for our majors but we do not have qualified instructors to teach the courses at the Palamanui campus. Physics and chemistry are required for our majors but we have to rely on lecturers to teach many of 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. Then 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.

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.

Faculty will work with the Administration and Human Resources to ensure that a qualified

Laboratory Coordinator is hired for the Manono campus. This position assists with lab preparation and does all of the materials and supply purchasing for the labs. Without a qualified person in this position, labs do not run smoothly and supplies are not being replenished. In addition, all present and future laboratories should maintain a preparatory room so that labs do not have to be scheduled around lab preparation. This will allow us to offer more labs in a more efficient manner. Faculty will continue to advocate for prep rooms, especially for the BSL2 facility.

The ability to offer physics labs on our campuses; to continuously offer biology, chemistry, and physics and the associated labs, taught by FT faculty on our campuses; and the ability to support 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.

Finally, we will work to align the NSCI courses with ASNS programs across UHCC. 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. Having the same curriculum will allow seamless transfer for students throughout the University of Hawaii system.

Budgetary Concerns

In order to make the entire degree program and its courses available to Hawaii Community College students, we hope to increase the number of courses that we offer for the ASNS in upcoming years – PHYS 151, 170/272, and the requisite lab courses. Currently, unlike UHH, 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 272L (as co-requisites to PHYS 151, 170 and 272). This requires faculty, facility and equipment for East Hawaii and West Hawaii. 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.

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.

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:

- Advocate for the development of a physics lab at both Manono and Palamanui.
 - 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 physical science instructor positions.
 - We intend to have all three positions filled by Fall 2019.

Action Item 3:

- Advocate for laboratory preparatory rooms attached to all labs and the hiring of a Manono Laboratory Coordinator.
 - We will continue to advocate for prep rooms and a Lab Coordinator until the funding is committed and the development of the rooms is complete and a Coordinator has been hired.
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Action Item 4:

- Align the NSCI courses with ASNS programs across UHCC.
 - We will work with campuses across the System to align all science course alphas, numbers, and titles (we expect to have changes in place by Fall 2019)

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

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.	

<p>Explain how the item(s) aligns with one or more of the strategic initiatives of <u>2015-2021 Strategic Directions</u>:</p> <p>http://hawaii.hawaii.edu/sites/default/files/docs/strategic-plan/hawcc-strategic-directions-2015-2021.pdf</p>	
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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 (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

<p>List all program courses assessed during AY17-18, including Initial and “Closing the Loop” assessments.</p>			
<p>Assessed Course Alpha, No., & Title</p>	<p>Semester assessed</p>	<p>CLOs assessed (CLO#s)</p>	<p>PLO alignment (PLO#s)</p>
<p>None scheduled for assessment this year (see Liberal Arts Annual Review for full list of non-ASNS science courses assessed)</p>			

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 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.

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
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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.

Other Comments

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

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.

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.

We will assess BIOL 171 and BIOL 171L in Fall 2018. We will use these results to improve the courses and improve future student learning.

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.**