HAWAIʻI COMMUNITY COLLEGE
PROGRAM COMPREHENSIVE 3-YEAR REVIEW REPORT

[NSCI]

Date: 7 April 2017

Review Period
July 1, 2013 to June 30, 2016
AY 2013-14, AY2014-15, and AY2015-16

Initiator: Joni Onishi
Writers: Pamela Y. Scheffler, Ruria Namba, Laura Hall, Bernhard Laurich, Roberta Brashear-Kaulfers, Kimberley Schorr, Barbara Zazzi

Program/Unit Review at Hawaiʻi 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 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 I: THE PROGRAM

Describe the Program	
Provide the short description as listed in the current catalog.	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 NSCI tracks: Biological Science and Physical Science. For more information, contact Laura Brezinsky by email (laura@hawaii.edu).
Provide and discuss the program's mission (or goals and objectives if no program mission statement is available).	The proposed new A.S. degree in Natural Science (NSCI) with concentrations in Biological Science or Physical Science at Hawaii Community College (HawCC) will prepare students to transfer to baccalaureate STEM (Science, Technology, Engineering and Mathematics) programs with a recognized and supported pathway. The degree will allow Hawaii Community College to better serve STEM students, as well as align our college's degree offerings with those of the other community college campuses.

Report and discuss all major/meaningful actions and activities that occurred in the program over the past three years, from July 1, 2013 through June 30, 2016. For example:	
Changes to the program's curriculum due to course additions, deletions, modifications (CRC, Fast Track, GE-designations), and re-sequencing	The program was created in 2014. Since that time we have gone from 2 students to 23 students majoring in the program. We have started to offer the majors biology course sequence (BIOL 171/L & 172/L) on our campus and we are working to offer majors chemistry and physics on our campus.

New certificates/degrees	This is a new degree program. All the degrees conferred are new.
Personnel and position additions and/or losses.	A faculty position was transferred from Liberal Arts to NSCI.
Other major/meaningful activities, including responses to previous CERC feedback.	This is the program's first comprehensive review. There are only 2 years of data on which to report.

Describe, analyze, and celebrate the program's successes and accomplishments. (For example, *more students were retained/graduated* OR *the program successfully integrated new strategies/technologies*.)	
Discuss what the program has been doing well that needs to be maintained and strengthened. Please provide evidence if applicable (ex: program data reports, relevant URL links, etc.).	The program is growing. We have been promoting the program, and have seen growth from 2 to 23 majors. Our faculty have been working hard to make it a fully-functional program by increasing the number of required courses that are offered at the Hawaii CC campuses. We offered BIOL 171 and 171L on our campus in Fall 2015 and BIOL 172 and 172L in Spring 2016. We began planning for offering CHEM 161 and 161L and CHEM 162 and 162L in the next academic year (2016-2017). We have continued to recruit and engage students in the program and have almost doubled our student enrollment for the second consecutive year. This has allowed us to stop relying on the two seats in BIOL 171/L and 172/L that were being held for us by UH Hilo and provide more of the needed courses for the majority of our student majors on our own campus.

Describe, analyze, and discuss any challenges and/or obstacles the program has faced.	
Identify and discuss the program's challenges/obstacles.	We have severe challenges with lack of faculty, lack of laboratory space, and lack of funding for providing laboratory materials. We are the only UHCC without a tenure-track Chemistry faculty member. At present, our chemistry courses are being taught by a lecturer and by our physics faculty. Our labs are hampered by an inability to purchase all of the desired supplies and equipment and faculty need to use creativity to teach without a full set of supplies. Pālamanui campus was built and opened but the biology and chemistry laboratories were not certified and courses could not be taught on campus.
Discuss changes and actions taken to address those challenges, and any results of those actions.	We have approached UHH to request use of their physics labs but the request was not granted. We have approached the Hawaii CC administration to request space and funding for a physics lab at the Manono and Pālamanui campuses. We have approached the lecturer in Chemistry to develop curriculum and teach CHEM 161, 161L, 162, and 162L in the 2016-17 year at the Manono campus. Work on Pālamanui biology and chemistry laboratories was begun. We created agreements with NELHA to use their lab space so that biology courses could be offered at Pālamanui during the lab preparation period. More work is planned for the 2016-17 year and we will have the labs certified and usable by Spring 2017.

Discuss what still needs to be done in order to successfully meet and overcome these challenges.	We need a physics lab on both campuses. In addition, we need funds to purchase the equipment and supplies to run PHYS 170L and 171L. We require a full-time chemistry professor. We need more departmental funds to purchase laboratory equipment and supplies so that we can offer full biology and chemistry labs.

ARPD Data

Please attach a copy of the ARPD data tables for the three years under review and submit with the Program Review document.

a) **If you will be submitting the Program Review document 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 Program Review document in digital form, attach a PDF copy along with the digital submission; the icon to download the data tables as a PDF is in the upper right side, just above the data tables.**

Program data can be found on the ARPD website: http://www.hawaii.edu/offices/cc/arpd/

Analyze the program's ARPD data for the 3-year review period.	
Describe, discuss, and provide context for the data, including the program's health scores in the Demand, Efficiency, Effectiveness, and Overall Health categories.	Demand is listed as "cautionary "in the 2014 report, "healthy" in the 2015, and "unhealthy" in the 2016 report. However, the 2016 data are flawed. Demand health is based on the "percent change in majors." The number of majors increased from 2 to 23 to 41 (a 78% increase over the last year) but the ARPD has it as a 0% increase. Despite the unhealthy call in this indicator, we feel that the continuing increase in majors over the time of the program is indicative of a healthy program.

	Efficiency is listed as "Cautionary" in the 2014 report, "healthy" in the 2015 report and "Healthy" in the 2016 report. However, we feel that, given the continued growth of the program we will soon have too many majors per faculty. This would be changed by creating a very needed chemistry position. Effectiveness is listed as "Cautionary" in 2014, "healthy" in 2015, and "cautionary" in 2016. There is only a 54.5% persistence from fall to spring in the last year. We believe that this is due to regular attrition at the College and related to financial aid issues. We know of several students who were unable to continue because they could no longer afford tuition. We also think there may be students who are registering as the wrong major. Overall health was listed as "cautionary" for all three years of reports. We believe that as a new program we are growing and will continue to improve.
Describe, discuss, and provide context for data in the Distance Education, Perkins Core Indicators, and Performance Funding Indicators categories, as appropriate.	NSCI had no awarded degrees for the first two years of its existence. In the 2015-16 year, we graduated 3 students. As the program matures, we expect to see this number continue to rise.
Describe any trends, and any internal and/or external factors that are relevant to understanding the program's data.	Overall College enrollment has decreased, however, the number of NSCI majors continues to increase. Demand for this program is strong despite external factors. 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.

Discuss other strengths and challenges of the program that are relevant to understanding the program's data.	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. Students are enrolling as majors with very low preparation in mathematics. These students are more likely to withdraw from the major without a degree if they cannot achieve the high mathematics standards required in the program. If they do persist, they may have many semesters of remedial mathematics (up to 3.5 years) before they reach the level of the program requirements.

Analyze the program's IRO data for the 3-year review period: If applicable: Discuss how data/analysis provided by the Institutional Research Office has been used for program improvement. (For example, how results from CCSSE or IRO research requests have impacted program development.)	
Describe, discuss, and provide context for the data.	N/A – did not request data
Discuss changes made as a result of the IRO data.	N/A – did not request data

<u>Contributions to the College</u>: Discuss how the program aligns with and supports the College's institutional effectiveness and helps the Kauhale achieve our shared goals.	
<u>College Mission</u>*:* *"Hawai'i Community College (Hawai'i CC) promotes student learning by embracing our unique Hawai'i Island culture and inspiring growth in the*	Many of the core classes for the NSCI incorporate place-based learning. We incorporate Service Learning. Our students come from a wide range of the Hawai'i Island community and we support them equally. We prepare students to work in high technology, high value STEM fields that provide benefits to our island population and communities. Students also graduate prepared to begin their own businesses in STEM fields.

spirit of "E ʻImi Pono." Aligned with the UH Community Colleges system's mission, we are committed to serving all segments of our Hawaiʻi Island community."	
Institutional Learning Outcomes (ILOs):	ILO 1: Our graduates will be able to communicate effectively in a variety of situations.
	ILO 2: Our graduates will be able to gather, evaluate and analyze ideas and information to use in overcoming challenges, solving problems and making decisions.
	ILO 3: Our graduates will develop the knowledge, skills and values to make contributions to our community in a manner that respects diversity and Hawaiian culture.

The Program's Learning-Outcomes Assessments

For assessment resources and PDF copies of all submitted assessment reports from the program during the review period, please see the following websites:

Assessment website: http://hawaii.hawaii.edu/files/assessment/

Assessment Reports/Resources: http://hawaii.hawaii.edu/files/assessment/reports/

■ The program faculty/staff have reviewed the program record on Kuali KSCM and hereby affirm that all information, including the PLOs, is correct.

☐ The program faculty/staff have reviewed the program record on Kuali KSCM and have found that all information is not correct and hereby affirm that the program will be submitting proposals for revision.
Kuali KSCM: https://hawaii.kuali.co/cm/#/courses

If the Kuali KSCM program entry needs revision (for example, to the program description, entry or completion requirements, and/or PLOs) those revisions must be proposed through the Fast Track process or CRC "Proposal to Modify a Program" process, as appropriate.

PLOs

Please list the Program Learning Outcomes (PLOs) as recorded on Kuali KSCM.	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.
Discuss the program's challenges, if any, in helping students overall achieve its PLOs.	It is difficult to help students to achieve the PLOs because we do not have faculty to teach all of the required courses for the program and we do not have laboratory space in which to offer them. We do not have the financial resources to create and maintain the supplies and equipment needed to offer modern laboratories and classrooms for science students.
Include a summary discussion of the results of any PLO assessments voluntarily undertaken by the program's faculty.	n/a

CLOs

Discuss and summarize the overall results of course learning outcomes (CLO) assessments during the 3-year review period.	CLO for program courses have not been reviewed during this 3-year period.
Describe how the program's faculty/staff regularly discussed and used overall assessment results to plan for improvement.	CLO are discussed regularly at Department meetings. Faculty discuss not only the Program courses, but also the ancillary Liberal Arts courses which NSCI students take.
Discuss the implementation of these improvement plans and consequences for overall program improvement.	Improving the courses and the student attainment of objectives will improve the quality of courses offered in the program.

PART II: PROGRAM ACTION PLAN

Describe and discuss the program's action plan to improve student learning for the next 3 years, from July 1, 2016 through June 30, 2019.	**Benchmarks and Timelines**
Action Goal 1: Advocate for the development of infrastructure to support science instruction, including a physics lab at both Manono and Pālamanui and a laboratory prep room at the Manono biology laboratory.	**Benchmarks/Timelines:** Continued discussions until complete
How can this action Goal lead to improvements in student learning and attainment of the program's learning outcomes (PLOs)? PHYS 170/L and 171/L are required for our majors but cannot be offered through Hawaii CC until lab space is created. The teaching time for biology labs is reduced because laboratory prep and courses need to be conducted in the same space and cannot be conducted simultaneously.	

The ability to offer physics labs on our campuses and to maximize the number of biology labs will address all four PLO:

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 and biology.

Action Goal 2:	**Benchmarks/Timelines:**
Advocate for increased faculty support and personnel, including the permanent confirmation of a chemistry instructor.	Continued discussions until personnel are hired and support levels are on par with other institutions

How can this action Goal lead to improvements in student learning and attainment of the program's learning outcomes (PLOs)?

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. Faculty are not able to meet their full potential because of the lack of support, including computers and professional development.

The increased productivity of our faculty and the ability to continuously offer chemistry and chemistry labs on our campuses will address all four PLO:

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 chemistry and will be exposed to more current teaching and research techniques and current research findings.

Action Goal 3:	**Benchmarks/Timelines:**
Increase funding for lab supplies and equipment	Fall 2018

How can this action Goal lead to improvements in student learning and attainment of the program's learning outcomes (PLOs)?

The laboratory courses taught are being defined by what we can afford to purchase, not the needs of the students. NSCI has no budget and depends on the Math department to release nearly all their B-budget funds to science. Even with the departmental funds, it is insufficient to meet the requirements of the laboratories and leave no left over for other expenses. Science has a lower budget than departments without recurring laboratory supply requirements.

The ability to full fund our labs and faculty needs will address all four PLO:

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, physics and chemistry.

Describe and discuss any specific strategies, tactics, activities, or plans for:	
Program modifications: To restructure the course sequence to make it more streamlined for students and prevent any issues with time conflicts between required courses.	
Course-level instructional or curriculum changes: Align courses across UHCCs.	
Changes to assessment practices, activities, or projects: Revise assessment schedule. Continue working on assessment of courses according to the schedule.	
Increases or changes in student support activities and services: Collaborate with area high schools in both East and West Hawaii to encourage STEM students to enroll in Hawaii CC NSCI courses through programs like Running Start, etc. Continue to do outreach at events like Hawaii CC Days. Collaborate with Hawaii CC Agriculture program to provide real-world applications through science fields like chemistry and biology.	

Discuss how the program's action plan will help the Kauhale achieve the four Initiatives in the College's ***Strategic Directions 2015-2021*** plan: http://hawaii.hawaii.edu/sites/default/files/docs/strategic-plan/hawcc-strategic-directions-2015-2021.pdf	
Hawai'i Graduation Initiative	Strengthen the pipeline and increase numbers of granted degrees in NSCI (STEM) through program growth and collaboration with high schools and community.
Hawai'i Innovation Initiative	Increase the number of STEM degrees. Collaboration with industry will allow increased contact with potential employers for students and increased exposure for the program and faculty.
21st Century Facilities (21CF) – Modern Teaching	Creating laboratory space for teaching physics at Manono and Pālamanui campuses will support the 21CF by creating modern facilities that support safe teaching, learning and research.

and Learning Environments	
High Performance Mission-Driven System	Through modernizing our teaching facilities we will be able to support our indigenous-serving institution in its goal to educate our students in the scientific foundations of sustainability.

Explain how the program's action plan contributes to the College's achievement of the performance-based measures below.	
Degrees & Certificates	In order to grant an AS in NS, we need to be able to teach all of the required courses. Creating the laboratory and prep space for this will allow us to serve our students.
Native Hawaiian Degrees & Certificates	We serve a broad range of students, including native Hawaiian students and need to be able to offer them all of the courses required for their degree.
STEM Degrees & Certificates (include 4-Year Degrees)	NSCI is a STEM degree program. Having the ability to offer all of our courses will allow us to increase the number of STEM degrees offered.
Pell Grant Recipients Degrees & Certificates	Our students come from a broad range of backgrounds. Having the facilities to offer all our courses will serve our Pell Grant recipients along with all NSCI majors.
Transfers to UH 4 Year/Transfers to non-UH 4 Year	The NSCI is designed as a transfer program for STEM students. In order to serve their needs and help them to become ready to transfer at junior-standing, we need the facilities to offer all of our courses.
IPEDS Success Rate	We are a new program.

Suggestions for Improvement: If the program's faculty/staff have any suggestions they'd like to share with the College about raising the program's or the College's overall enrollment, improving overall student engagement and success, or any other matter that the faculty/staff think can help the College increase our overall institutional effectiveness, please discuss below.
In recognition of the fact that many students entering community college for the first time are not prepared to do college level work, a course which teaches critical thinking skills should be added as a program requirement. Currently IS 101 and ENG 102, already offered by the College, could provide the skills needed by our students, however our students are not required to take this course. Our students would benefit greatly from practice in interpreting, analyzing, synthesizing, and assessing information, time management, how to prepare for class lectures, exams, and discussions, and how to take notes, and would supply students with the foundation needed for success at the college level. There is only one 200-level course available in the program; it would be beneficial for our students to have the option of taking a more diverse range of higher-level science courses. Development of 200-level courses in multiple STEM subjects would benefit students and help them prepare for transfer to 4-year programs.

PART III: Resources

Note: "Budget asks" for all categories may be included in the Comprehensive Review.

Based on the program's overall AY 2014-16 assessment results, other relevant program information and data, and the program's overall action plan to improve student learning, describe and discuss below the program's current resources, resource needs, and cost-item "budget asks" for the 3-year period from July 1, 2016 through June 30, 2019.

Resource Inventory

Describe the status of the following faculty/staff program resources:	
Adequate Academic Support Resources (Library, tutoring, learning and testing facilities).	The library is sufficient to support our needs, as are the learning and testing facilities. Having peer tutors for the difficult subjects of math and science is important to our students and more regular tutoring in these areas would be beneficial.

	Pālamanui does not have adequate computer lab spaces to support the students in the science laboratories. Unless more computer terminals become available, the Pālamanui campus would like to request tablets for each bench in the biology lab.
Adequate Student Support Services (academic advising, counseling, career guidance).	We feel that this is adequate.
Safe workplace.	Our workplace is generally safe, but because all biology labs need to be prepped in the teaching laboratory, there are supplies and equipment in student areas that should not be there. It would be safest to have a dedicated prep room to house equipment like the autoclave, and provide dedicated space for preparation of chemical solutions and biohazards.
Adequate and up-to-date computers and software (for program needs).	We are lacking in computers and software. In order for faculty to stay current in the many quickly moving STEM fields, it would be reasonable to have a laptop assigned to each faculty member so that work could be taken with them to meetings and conferences. We do not have a software budget and updated, current software should be something each faculty member has access to. One or more computers should be available in every laboratory with modern software for student use and teaching data analysis in laboratories.
Adequate computer access to allow faculty to do their jobs.	Faculty have computers available to them in their offices but laptops should be provided for each faculty member in order to continue to work while at meetings and conferences or during evenings, etc. while away from the office. Each should be maintained with current software (for example, this report is being written on Word 2007 because software is not kept current and there is no budget for that).

Adequate training in computer technology (applications, operating systems, hardware, etc.).	Training is adequate for our needs.
Adequate training in audiovisual technology (projectors, ELMOs, polycom, etc.).	Training is adequate for our needs.
Adequate training in distance learning course development and management (Laulima, etc.).	Training is adequate for our needs.

Resource Category	Resources the program needs to operate effectively:	Resources the program already has:	What is the program's resource gap?
A. Personnel			
1) Positions (Functions)	10	1 (+6 in other programs)	3
2) Professional Development	1 national conference per faculty per year	0	Professional development funds for 7 faculty to attend national conferences
B. Operating Resources			
1) Supplies	$50,000	$21,315	$28, 685
2) Contracts			
3) Equipment	$80,400	Included in supplies	$80,400

4) Space and Facilities	$650,000	$0	$650,000
C. Technology			
1) Hardware	$91,900	$0	$91,900
2) Apps or Software	$3,000	$0	$3000
3) Tech Support			
4) Tech-related Professional Development			
5) Tech labs / facilities			

RESOURCE REQUESTS: **For <u>each</u> "budget-ask" item, provide the following information:**	
Describe the needed item in detail.	We need funding for two additional appointments: at present we are the only campus in the 10-campus UH system that does not have a Chemistry instructor position. We have a physics faculty who is taking up some of the courses plus a lecturer who is hired at over full-time every semester. In addition, we hire lecturers to teach more than full-time biology courses. Even if we were to create an additional biology and chemistry position, there would still be courses that would need to be taught by lecturers
Provide complete information about known or estimated cost(s).	$50,000 plus benefits per position
Provide details about timeline(s) for procurement and activation/implementation.	We would like to have these positions as soon as possible
How does this align with the program's Action Plan above?	This clearly aligns with the Action Goal 2
Identify how the item aligns with one or more of the ***2015-2021 Strategic Directions'*** four Initiatives.	By creating full time positions, we create the atmosphere for a more-dedicated and long-term employee who will work on program improvement outside the classroom hours. This will allow us to serve more students more efficiently and we will

	graduate more STEM students, give more STEM degrees to all our students, including native Hawaiians and Pell grant recipients.
Discuss how the item will help the program support improvements in student learning and attainment of the program's and College's learning outcomes.	Full-time faculty are required to work with program improvements, student learning and attainment of learning outcomes at a level not required of lecturers.

RESOURCE REQUESTS: **For <u>each</u> "budget-ask" item, answer the following questions:**	
What are the implications or consequences for the program if this request is not funded?	The program will not meet its potential. If it gains the reputation of not having quality faculty students will not enroll, enrollment and degrees granted will drop.
How can the program build, create, or develop the needed resources within its existing capacity?	We can continue to hire more lecturers, leading to a continued decrease of the educational potential of the program.
Can other resources be re-purposed to accommodate this need?	no
Are there other sources to fund this need, such as grants, community partnerships, etc.?	Not known
Can this need be deferred? If so, for how long?	Yes, but not for long. Should be completed within 12 months to reach the full potential of the program.

What are the consequences if deferred?	

RESOURCE REQUESTS: **For <u>each</u> "budget-ask" item, provide the following information:**	
Describe the needed item in detail.	We require a physics lab at both Manono and Pālamanui campus.
Provide complete information about known or estimated cost(s).	At least $650,000 per lab
Provide details about timeline(s) for procurement and activation/implementation.	We would like to have these laboratories as soon as possible
How does this align with the program's Action Plan above?	This aligns with Action Goal 1: full laboratory spaces for all of our required courses.
Identify how the item aligns with one or more of the ***2015-2021 Strategic Directions'*** four Initiatives.	This will allow us to serve more students more efficiently and we will graduate more STEM students, give more STEM degrees to all our students, including native Hawaiians and Pell grant recipients.
Discuss how the item will help the program support improvements in student learning and attainment of the program's and College's learning outcomes.	The ability to teach all of our courses will help us in every measure of student success including learning and learning outcome attainment.

RESOURCE REQUESTS: **For <u>each</u> "budget-ask" item, answer the following questions:**	
What are the implications or consequences for the program if this request is not funded?	The program will not meet its potential. If it gains the reputation of not having quality facilities students will not enroll, enrollment and degrees granted will drop.
How can the program build, create, or develop the needed resources within its existing capacity?	We cannot do this within our existing budget.
Can other resources be re-purposed to accommodate this need?	Lab space could be created in existing rooms on both campus but they would need to be remodeled for safety and for functionality reasons. Science labs cannot be run in normal classrooms.
Are there other sources to fund this need, such as grants, community partnerships, etc.?	Not known
Can this need be deferred? If so, for how long? What are the consequences if deferred?	Yes, but not for long. Should be completed within 12 months to reach the full potential of the program.

RESOURCE REQUESTS: **For <u>each</u> "budget-ask" item, provide the following information:**	
Describe the needed item in detail.	We need to have equipment and professional development opportunities that allow our faculty to stay current in their fields. We request laptops (with funds for current software) for each faculty member and access to professional development funds for

	travel to discipline specific conferences, especially if the member can present research or teaching methodologies at the conference.
Provide complete information about known or estimated cost(s).	$24,500 in the first year, $14,000 annually thereafter.
Provide details about timeline(s) for procurement and activation/implementation.	We would like to provide laptops and professional development opportunities as soon as possible.
How does this align with the program's Action Plan above?	This aligns with Action Goal 2 by providing support for faculty to remain current in their field.
Identify how the item aligns with one or more of the ***2015-2021 Strategic Directions'*** four Initiatives.	Innovation and High performance Science is a constantly changing field with new discoveries on a regular basis. The ability to remain current in the field is critical to scientific thought and passing that along to students in the form of learning modern science.
Discuss how the item will help the program support improvements in student learning and attainment of the program's and College's learning outcomes.	The laptops will allow faculty to continue to work even when not in the office. Increased professional development in the field of expertise will be passed along to students, increasing their learning and attainment of learning outcomes.

RESOURCE REQUESTS: **For <u>each</u> "budget-ask" item, answer the following questions:**	
What are the implications or consequences for the program if this request is not funded?	The program will not meet its potential. Faculty will not remain current in their field and will not have the ability to work from

	outside the office. Students will not have the same experience as they would if working under faculty with a current understanding of the field.
How can the program build, create, or develop the needed resources within its existing capacity?	Currently some faculty pay for their own conference attendance. There are some college funds for faculty development but they are not regularly available and usually provide for attendance at pedagogical, not content-based conferences. Faculty usually purchase their own laptops but with these they are not able to obtain UH software or technical support and lose productivity for this reason.
Can other resources be re-purposed to accommodate this need?	No.
Are there other sources to fund this need, such as grants, community partnerships, etc.?	Not known
Can this need be deferred? If so, for how long? What are the consequences if deferred?	Yes, but not for long. Should be completed within 12 months to reach the full potential of the program.
RESOURCE REQUESTS: **For <u>each</u> "budget-ask" item, provide the following information:**	
Describe the needed item in detail.	We require a prep room for the biology lab at the Manono campus
Provide complete information about known or estimated cost(s).	~ $400,000

Provide details about timeline(s) for procurement and activation/implementation.	We would like to have this prep room as soon as possible
How does this align with the program's Action Plan above?	This aligns with Action Goal 1: full laboratory spaces for all of our required courses.
Identify how the item aligns with one or more of the ***2015-2021 Strategic Directions'*** four Initiatives.	This will allow us to serve more students more efficiently and we will graduate more STEM students, give more STEM degrees to all our students, including native Hawaiians and Pell grant recipients.
Discuss how the item will help the program support improvements in student learning and attainment of the program's and College's learning outcomes.	The ability to schedule and teach all of our laboratory courses efficiently will help us in every measure of student success including learning and learning outcome attainment.

RESOURCE REQUESTS:
For <u>each</u> "budget-ask" item, answer the following questions:

What are the implications or consequences for the program if this request is not funded?	The program will not meet its potential. If it gains the reputation of not having quality facilities students will not enroll, enrollment and degrees granted will drop.
How can the program build, create, or develop the needed resources within its existing capacity?	We cannot within the existing budget.
Can other resources be re-purposed to accommodate this need?	Lab prep space could be created near the biology lab through a remodel of existing space.

Are there other sources to fund this need, such as grants, community partnerships, etc.?	Not known.
Can this need be deferred? If so, for how long? What are the consequences if deferred?	Yes, but not for long. Should be completed within 12 months to reach the full potential of the program.

RESOURCE REQUESTS: **For <u>each</u> "budget-ask" item, provide the following information:**	
Describe the needed item in detail.	The funding for laboratory equipment and consumable supplies needs to be increased to meet the needs of the laboratory courses. We also require a SCANTRON machine on the Manono campus to aid with assessment, including Learning Outcome assessment. There is a particular need at Pālamanui which has laboratories but almost no equipment or supplies to equip these labs. Pālamanui needs 24 compound light microscopes, 16 dissecting scopes, 2 pH meters and an annual Biosafety Cabinet Certification plus computer resources.
Provide complete information about known or estimated cost(s).	$28,685 additional annually plus $171,500 for one-time purchases for the Pālamanui laboratories and the SCANTRON.
Provide details about timeline(s) for procurement and activation/implementation.	We would like to have be able to purchase supplies and equipment as soon as possible
How does this align with the program's Action Plan above?	This aligns with the Action Goal 3

Identify how the item aligns with one or more of the ***2015-2021 Strategic Directions'*** four Initiatives.	This aligns with the 21st C facilities and High performance Mission Driven systems by increasing the relevance of the labs we teach and providing students modern knowledge when they graduate.
Discuss how the item will help the program support improvements in student learning and attainment of the program's and College's learning outcomes.	Having sufficient funds to purchase supplies for the science laboratories will allow us to better teach our students. In addition, the demands of the laboratories will not have to prevent spending on the basic purchases (e.g., replacing broken office chairs) that most departments are able to fund.

RESOURCE REQUESTS: **For <u>each</u> "budget-ask" item, answer the following questions:**	
What are the implications or consequences for the program if this request is not funded?	The program will not meet its potential. If it gains the reputation of not having quality laboratories, students will not enroll, enrollment and degrees granted will drop. Not having the SCANTRON easily available affects our ability to efficiently comply with Accreditation activities like learning outcome assessment.
How can the program build, create, or develop the needed resources within its existing capacity?	We do not have the funds to do so.
Can other resources be re-purposed to accommodate this need?	No

Are there other sources to fund this need, such as grants, community partnerships, etc.?	Not known
Can this need be deferred? If so, for how long? What are the consequences if deferred?	Yes, but not for long. Should be completed within 12 months to reach the full potential of the program.