ANNUAL REPORT OF PROGRAM DATA 2023

July 1, 2022 through June 30, 2023

A.S. in Natural Sciences

1. Program or Unit Mission

The Associate in Science in Natural Science (NSCI) 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 NSCI tracks: Biological Science (NSCI-BSC) and Physical Science (NSCI-PSC).

The NSCI-BSC and NSCI-PSC are designed to provide a transferable degree to students interested in life and physical sciences. Students who graduate from the NSCI Program transfer within the University of Hawai‘i system as juniors ready to take more specialized 300- and 400-level courses. It is targeted towards high school students with an interest in science. For West Hawai‘i residents, this program provides the opportunity to attend school locally while completing the first two years of courses necessary for a four-year science degree.

2. Program Student Learning Outcomes or Unit/Service Outcomes

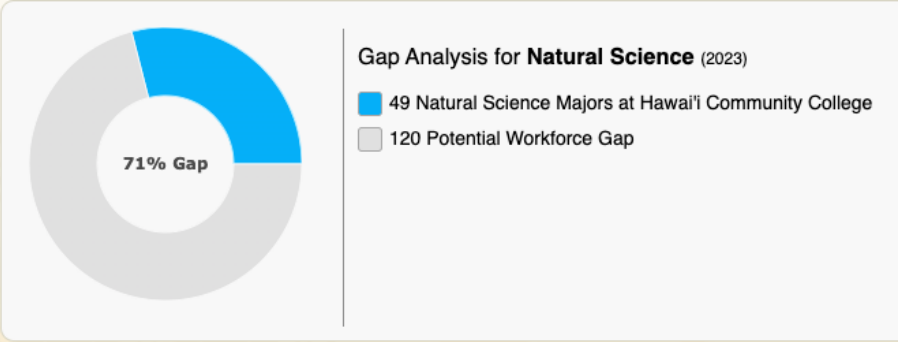
There are no assessment results to report for the Academic Year 2022-2023. No AS-NSCI courses were scheduled for assessment for this academic year, but we had three outstanding assessments (Closing The Loop assessments for CHEM161L, CHEM162, and CHEM162L) carried over from the previous year. We will be working with the instructors to complete these assessments as soon as possible. In addition, we will work with the Institutional Assessment Coordinator to add two new courses (BIOL275 and BIOL275L) to the assessment schedule.

3. Analysis of the Program/Unit

ARPD data

Based on the Gap Analysis on the ARPD’s Workforce Analytics, there is 71% Gap between the potential jobs and the number of AS-NSCI majors at HawCC (Figure 1), indicating that there are workforce demands that this program can fill.

Figure 1: Gap Analysis for Natural Science (2023) (from Workforce Analytics on ARPD)



According to the ARPD data, the overall program health is rated as **Progressing**. The ARPD data for HawCC's AS-NSCI program is attached at the end of this report.
Demand is rated as **Healthy**. As shown in Table 1 below, the percentage of majors increased by 4% from previous year (item 2 in the table), along with the total number of majors (item 1) and the number of majors who are Native Hawaiian (item 1a). Moreover, the number of classes taught also increased from 16 to 21.

Table 1: Demand Indicators from the last five years

#	Demand Indicators	2018-19	2019-20	2020-21	2021-22	2022-23
1.	Number of Majors	49	46	51	49	51
1a.	Number of Majors Native Hawaiian	14	14	12	9	10
1b.	Fall Full-Time	40%	43%	39%	29%	24%
1c.	Fall Part-Time	60%	57%	61%	71%	76%
1d.	Fall Part-Time who are Full-Time in System	2%	2%	9%	12%	29%
1e.	Spring Full-Time	42%	34%	43%	22%	28%
1f.	Spring Part-Time	58%	66%	57%	78%	72%
1g.	Spring Part-Time who are Full-Time in System	2%	5%	13%	20%	9%
2.*	Percent Change Majors from Prior Year	-8%	-6%	10%	-4%	4%
3.	SSH Program Majors in Program Classes	201	283	214	168	227
4.	SSH Non-Majors in Program Classes	153	339	378	301	267
5.	SSH in All Program Classes	354	622	592	469	494
6.	FTE Enrollment in Program Classes	12	21	20	16	16
7.	Total Number of Classes Taught	19	27	21	16	21

Efficiency is rated as **Progressing**. As shown in Table 2, our average class size and fill rate decreased from the previous year (12 students per class to 10 students per class, and 62.7% fill rate to 50.1% fill rate). All of the labs, which is nearly 50% of the program courses, are taught in-person, while some UHCC campuses are still offering labs in DL modality, especially in physical sciences. A quick search for Fall 2023 listings identified 10 sections of CHEM161L offered remotely, some asynchronously, from other CCs. We think that the decrease in class size is primarily due to some students opting to take these labs remotely.

Table 2: Efficiency Indicators from the last five years

#	Efficiency Indicators	2018-19	2019-20	2020-21	2021-22	2022-23
8.	Average Class Size	9	11	12	12	10
9.*	Fill Rate	46.2%	56.6%	59.9%	62.7%	50.1%
10.	FTE BOR Appointed Faculty	3	3	3	3	3
11.*	Majors to FTE BOR Appointed Faculty	16	15	17	16	17
12.	Majors to Analytic FTE Faculty	49	23	25	48	25
12a.	Analytic FTE Faculty	1	2	2	1	2
13.	Overall Program Expenditures	$360,603	$376,492	$246,702	$229,211	$772,397
13a.	General Funded Budget Allocation	$260,319	$263,718	$235,420	$225,487	$756,728
13b.	Special/Federal Budget Allocation	0	0	0	0	0
13c.	Tuition and Fees	$100,284	$112,774	$11,282	$3,724	$15,669
14.	Cost per SSH	$1019	$605	$417	$489	$1564
15.	Number of Low-Enrolled (<10) Classes	10	11	8	8	11

Effectiveness is rated as **Progressing**. As shown in Table 3 below, we increased the rate of course completion (from 69% to 82%), decreased the number of course withdrawals (from 25 to 13), and continued to increase the fall-to-spring persistence for three years in a row, which is currently at 65%. The fall-to-fall persistence rate decreased from last year and the number of degrees awarded dropped from eight to five. We continue to see many students transfer to 4-year UH campuses before obtaining the degree with us. For example, four transferred to UH 4-yr after receiving their degree (item 20a in Table 3) while five students transferred out without the degree (item 20b in Table 3). We believe that this is because our campuses (both Manono and Pālamanui) have not offered the required Physics courses and students must take these courses with other campuses. Some students opt to transfer to UHHilo early and take in-person Physics courses.

Table 3: Effectiveness Indicators from the last five years

#	Effectiveness Indicators	2018-19	2019-20	2020-21	2021-22	2022-23
16.	Successful Completion (Equivalent C or Higher)	69%	71%	70%	69%	82%
17.	Withdrawals (Grade = W)	15	16	32	25	13
18.*	Persistence Fall to Spring	62%	53%	59%	63%	65%
18a.	Persistence Fall to Fall	43%	25%	36%	47%	34%
19.*	Unduplicated Degrees/Certificates Awarded Prior Fiscal Year	6	4	1	8	5
19a.	Associate Degrees Awarded	6	4	1	8	5
19b.	Academic Subject Certificates Awarded	0	0	0	0	0
19c.	Goal	0	0	0	0	0
19d.	Difference Between Unduplicated Awarded and Goal	0	0	0	0	0
20.	Transfers to UH 4-yr	9	9	7	14	9
20a.	Transfers with degree from program	2	4	1	3	4
20b.	Transfers without degree from program	7	5	6	11	5
20c.	Increase by 3% Annual Transfers to UH 4-yr Goal					
20d.	Difference Between Transfers and Goal					

Action Goals from the Last Comprehensive Program Review in 2020

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. This action goal is nearly complete. The Pālamanui physics lab was completed in AY2020-2021, and the Manono physics lab and prep room renovation started in Spring 2023. We hope to be able move both of these rooms for Fall 2024.

Action Goal 2: Advocate for increased faculty support and personnel, including the permanent confirmation of a laboratory coordinators for both Pālamanui and Hilo campuses and a faculty position in physics. This was Action Goal 1 on last year's Annual Program Review. We lost two science lab coordinator positions and several faculty positions were kept vacant as a part of the pandemic related position cuts and hiring freeze at the end of AY2019-2020. Since then, we were able to hire a Mathematics faculty who started in Fall 2022. We also begin the hiring process for a Physics faculty position, and plan to have a position filled by Spring 2024. We still have not been able to get the permanent lab coordinators (one for each campus), and continue to advocate for these positions. Unfortunately, we lost a Pālamanui Chemistry faculty in Spring 2023, which add another vacant position for us to advocate for in the future.

Action Goal 3: Increase funding for lab supplies and equipment, including pursuit of external funding. This was Action Goal 2 on last year's Annual Program Review. We requested two -80-degree freezers (one for each campus) which is beyond our budget, but the request was not filled. This year, we received $1,900 donation to the "HawaiiCC Natural Science Fund" to support the program needs. However, the cost of the freezers far exceeds our budget, and we will be requesting them again this year.

Action Goal 4: Increase funding for professional development of science faculty within their field of study. This was Action Goal 3 on last year's Annual Program Review. Professional development (PD) funds were available through HEERF funding until the end of Spring 2023. The new Chancellor is working with Faculty Staff Development Committee to establish a process for PD funds. We will continue to encourage faculty to apply for this funding, as travel restrictions are lifted to ensure that our faculty can stay current in their fields of expertise.

Action Goal 5: Work with the College to provide clean and accurate data on program measures. This was Action Goal 4 on last year's Annual Program Review. ARPD data for Demand health indicators have repeatedly been incorrectly reported for multiple years in a row. We will continue to provide feedback on the ARPD data that are not accurate.

Action Goal 6: Create a First Year Experience (FYE) course specifically for NSCI majors. This was Action Goal 5 on last year's Annual Program Review. We continue to brainstorm ideas for a STEM bridge course or FYE course for STEM majors. This will be a long-term goal for the program.

Action Goal 7: Collaborate with UH Hilo to create an articulation pathway with the Marine Science degree and NSCI. The preparation to offer an Academic Subject Certificate for Marine

Options Program (MOP) is underway. We will start to review the curriculum for the program courses to maximize articulation with UH Hilo's Marine Science program.

Action Goal 8: Increase faculty office space on the Pālamanui and Manono campuses. The current office space needs for the faculty are met on both campuses. The Manono campus STEM center renovation created six office spaces for Math and Science faculty, as well as three classrooms and a student study room. The Pālamanui Math and Science faculty have office spaces in the Limuwai building adjacent to the science labs.

Action Goal 9: Improve teaching spaces on the Pālamanui and Manono campuses. We now have three new classrooms on the Manono campus, and a Physics lab and a lab prep room will be available next year. One of the three classrooms in the STEM building is used as a non-BSL2 lab classroom, and this opened up more time in the BSL2 lab in Building 396 for prep work. Once the Physics lab and prep room become available, we should easily be able to meet the demands of in-person courses on the Manono campus. The space needs on the Pālamanui campus are currently met, since the number of in-person courses and labs offered at still not back at the pre-pandemic level. One area of future improvement is the quality and set up of AV and Zoom equipment in the classroom and labs. The audio quality and camera angles in hybrid classrooms (i.e., teacher is in the classroom and some students are on Zoom or in another classroom) are not optimal. Faculty will continue to work with the Media department to improve the set up in each classroom.

Action Goal 10: Provide science-specific tutoring and peer mentors at both Pālamanui and Manono campuses. This was Action Goal 6 on last year's Annual Program Review. Through the B2B-STAMP-Two grant, we funded three students two STEM tutors on the Manono Campus and one Chemistry tutor. The two STEM tutors hosted office hours in the newly renovated STEM building on the Manono Campus and provided much needed peer mentoring and tutoring to the AS-NSCI students as well as other students needing help in Math and Sciences. The Chemistry tutor worked with the Learning Center and hosted remote office hours. We are currently in the second year of this funding, and we will continue to find qualified STEM students and also source of funds to support peer mentors on both campuses.

Action Goal 11: Provide supplies such as laptops and software for faculty to excel in their positions. This was also Action Goal 3 on last year's Annual Program Review. The computer needs of the faculty are currently met, and the college and UH system continues to provide site license for several teaching tools, such as Padlet and EdPuzzle, for interested faculty.

Significant Program Changes and Actions

The recruitment for a Physics Faculty position on the Manono campus started in Spring 2022, and we hope to have a Physics instructor in place for Spring 2024. Two positions in our department became vacant: Math faculty position after the previous faculty completed his terminal semester in Spring 2023, and Pālamanui Chemistry faculty position due to resignation in Spring 2023. Due to the backlog in filling the faculty vacancies, we are not sure when these positions will be filled. We continued to advocate for Science Lab Coordinator positions, but have not been successful. We hope that this situation will be resolved soon so that the program faculty can focus on teaching and

fully supporting the students and improving the program, rather than taking reassigned time to fill in the lab coordinator duties or training and supervising student workers.

Thanks to the HEERF funds and extramural funds which allowed us to purchase necessary lab equipment and supplies, we were able to offer BIOL275 and co-requisite BIOL275L for the first time in Fall 2022 on both campuses. These courses are Textbook Cost Zero designated, and the faculty wrote the lab manual for BIOL275L to be placed-based and inquiry-based. Moreover, the Writing Intensive application for BIOL275L was approved, so starting Fall 2023, this course will fulfil a part of the WI requirement (two WI courses are required for this degree.) All five students who registered for BIOL275/275L completed these courses, and four of the five students received the degree at the end of the Spring 2023 semester (one student is still completing the program requirements). Being able to offer 200-level major's courses on our campuses allows our faculty to build stronger connection with our students and offer faculty mentoring which is key to the success of this program. We have begun to offer "off-sequence" Pre-Calculus and Calculus courses. This adds to the options for students, and allows for re-takes and continue the STEM Math sequence without a gap. Upon completion of the Manono Physics Lab renovation and hiring of a Physics instructor, we hope to offer Physics courses on our campuses. We believe that this will increase semester-to-semester student retention and the number of students completing the degree before transferring to 4-year universities.

We received another year of funding from the B2B-STAMP-TWO multi-institutional grant to support to AS-NSCI majors and pay stipends for STEM tutors and peer mentors. The STEM tutors and peer mentors provided support to both non-majors and majors. We also received a 3-year grant funding from National Endowment for Humanities to fund summer place-based STEM camp on the Pālamanui campus which will help our outreach efforts in the community and build a pipeline from K-12 schools to our program.

4. Action Plan

Last Year's Goal 1: Advocate for increased faculty support and personnel, including and most importantly the permanent confirmation of laboratory coordinators for both Pālamanui and Hilo campuses and a faculty position in physics. Our request for a permanent Lab Coordinator Position for each campus was not met. This is our priority, and we will continue to advocate for these positions. The Manono Physics Faculty position is most likely to be filled before the end of AY2023-2024. We also have one vacant Pālamanui Chemistry Faculty position to be filled.

Last Year's Goal 2: Increase funding for lab supplies and equipment, specifically for new lab courses that will need to be offered. We now have equipment needed to offer BIOL275L and funds to purchase equipment for Physics Lab courses when the courses are ready to be offered. Our resource request for -80C freezers (estimated $15,000 at that time) last year was not met. We would like to request for these items again. This equipment will be used to store resources shared by multiple biology labs (BIOL101L, BIOL171L, BIOL275L, and MICR140L) and reduce lab expenses in the long run because reagents and bacterial strains can be frozen in -80 degrees for

many years and defrost to use when needed, rather than ordering them every year. This not only save the lab expenses and shipping costs, but also frees us from having to go through cumbersome state and UH approval processes for shipping biologicals every time they are ordered.

Last Year's Goal 3: Increase funding for instructional support and professional development for the faculty teaching AS-NSCI courses within their field of study. This goal was included to meet the needs of faculty professional development and instructional software. After the pandemic, UH system and the college have continued to provide site licenses for commonly used teaching tools such as Padlet and EdPuzzle. Because HawCC now has a Professional Development fund request process in place through the Faculty Staff Development Committee, individual faculty can request funding to attend a conference through the college.

Last Year's Goal 4: Work with the College to provide clean and accurate data on program measures. We continued to find errors on the data. We will continue working to provide feedback.

Last Year's Goal 5: Create a First Year Experience (FYE) course specifically for NSCI majors. Our students come in to the program with varying degree of preparedness in Math and Science, as well as college skills. A bridge course or a FYE course for STEM majors will provide an opportunity to fill these gaps and build relationships with faculty mentors and peers. We will continue to brainstorm ideas and develop learning outcomes and curriculum for a course that meet the need of the program. This will be a long-term goal for the program.

Last Year's Goal 6: Provide science-specific tutoring and peer mentors at both Pālamanui and Manono campuses. We met this goal for AY2022-2023. We will continue to work to establish an on-going STEM tutoring and peer mentoring program on both campuses. The Manono campus now have a designated STEM center in the STEM building which acts as a student lounge, study area, and tutor's office. We would like to establish something similar on the Pālamanui campus.

Last Year's Goal 7: Provide additional outreach to high schools for the AS-NSCI program on both campuses to recruit new students into the program. We continue to strengthen connections with high school and increase the presence in the community. We participated in Career Fairs at Kealakehe High School, project showcase at West Hawaii Exploration Academy, and Astroday West in Kona. Now that the pandemic is over, more and more public events are coming back. We will continue to participate in outreach events.

Last Year's Goal 8: Offer the remaining Physics (PHYS151/L, 170/L, 272/L) Biology (BIOL275/L and 265/L) on both campuses. We offered synchronous BIOL275 and in-person BIOL275L (Cell and Molecular Biology) on both campuses for the first time in Fall 2022. We plan to offer these courses every fall semester. Once the Manono physics lab renovation is completed and the Physics instructor is hired, we plan to offer Physics courses and in-person labs on both campuses. Our target is Fall of 2024. We will continue to work towards offering Physics and BIOL265/L in the future.

Last Year's Goal 9: Realign the MATH241 and MATH242 courses into the AS-NSCI program. We have begun to offer "off-sequence" Pre-Calc and Calc courses. This adds to the

options for students and allows for re-takes and semester-to-semester progress for student that beginning Spring semester. In future reports, the assessment, course revisions, and GE designations will be included in both the AS-NSCI and AA-Liberal Arts reports. This will serve both degrees, as these courses satisfy program and graduation requirements for both majors.

Action plans for the upcoming year are aligned with the following four goals of Hawai'i Community College's Strategic Directions 2015-2021 Plan.

- **Hawai'i Graduation Initiative (HGI)** Goal: Increase the educational capital of the state by increasing the participation and completion of students, particularly Native Hawaiians, low-income students, and those from underserved regions and populations, and preparing them for success in the workforce and their communities.
- **Hawai'i Innovation Initiative (HII)** Goal: Create more high-quality jobs and diversify Hawai'i's economy by leading the development of a $1 billion innovation, research, education, and training enterprise that addresses the challenges and opportunities faced by Hawai'i and the world.
- **21st Century Facilities (21CF)- Modern Teaching and Learning Environments** Goal: Eliminate the university's deferred maintenance backlog and modernize facilities and campus environments to be safe, sustainable, and supportive of modern practices in teaching, learning, and research.
- **High Performance Mission-Driven System (HPMS)** Goal: Through cost-effective, transparent, and accountable practices, ensure financial viability and sustainability to ensure UH's ability to provide a diverse student body throughout Hawai'i with affordable access to a superb higher education experience in support of the institutional mission of the university, which includes commitments to being a foremost indigenous-serving university and advancing sustainability.

Action Plan 1: Continue to advocate for hiring permanent Lab Coordinators for both campuses. This action plan aligns with *21CF Action Strategy 3: Provide safe, healthy, and discrimination-free environments for teaching, learning, and scholarship for students, employees, and visitors*, as well as *HPMS Action Strategy 1: Employ best practices in management, administration, and operations.* This is our priority. Science labs are required not only for the AS-NSCI, but also for AA-Liberal Arts, AS-Fire Science, and are pre-requisites for the AS in Nursing. Thus, the quality of our lab courses impacts many groups of students at our college. Lab coordinators are responsible for keeping the lab space, equipment, and reagents in working order so that the classes can run safely and smoothly. They also are responsible for maintaining up-to-date records of trainings, inventories, equipment certification, and lab protocols so that we are in compliance with rules and regulations set forth by appropriate federal, state, and UH entities. Our campuses have been operating without lab coordinators since 2020. Now that we are offering larger size labs and increasing the number of in-person labs every semester, we really need these positions back to fulfill these tasks. For Fall 2023, we are offering 18 in-person labs (12 on the Manono campus and six on the Pālamanui campus). Since we plan to offer Physics labs in the near future, new Physics lab equipment also needs to be procured in addition to regular lab supplies needed. On top of regular lab coordinator duties described above, the Pālamanui lab coordinator will have additional duties to act as a contact person for programs and organizations interested in using the

science lab classrooms. For example, in the past, the lab coordinator was the contact person for the Windward CC's veterinary technician program which offered a hybrid program with in-person labs on the Pālamanui campus. The campus receives requests to use the lab space for workshops and classes such as a new algae technician program at WinCC which will be offering in-person lab on the Pālamanui campus starting in Spring 2023, and we will need a contact person. We also anticipate that the Pālamanui science coordinator can be the contact person for various HawCC programs such as TEAM and the newly approved MOPs for coordinating student internships and field work on the West side of the island. Hiring a Pālamanui lab coordinator aligns with *HGI Action Strategy 4: Solidify the foundations for Hawai'i CC at Pālamanui, our newest campus, and establish large-scale student support services for Native Hawaiians, low-income students, and the under-represented populations served.*

Action Plan 2: Advocate to fill the vacant Math and Science faculty positions. This action plan aligns with *HI2 Action Strategy 3: Continue to support programs that suit Hawai'i Island's location and environment as well as address critical gaps. (Ocean and climate sciences, Astronomy, Health and wellness, Digital/creative media, Cybersecurity, Sustainable agriculture, Energy, Data intensive science and engineering initiative to support all research sectors)*. Associates of Science in Natural Science degree prepares students for careers in STEM whether students transfer to a 4-year Baccalaureate program or get a job in a STEM field. The program fills the needs on our island for academic training that leads to employment in well-paid and stable jobs in the STEM fields. It is important that all students regardless of where they live on our island have access to the program, and thus, we need faculty on the Pālamanui campus. We currently have a vacant Pālamanui Physical Science faculty position which opened due to a resignation in Spring 2023. We also have a Math faculty position which became vacant in Fall 2023 after the previous faculty completed his terminal year. Because of the current backlog in the hiring process at our college, it will most likely take more than one year to fill a faculty position. We will continue to advocate for these positions to be filled in a timely manner.

Action Plan 3: Offer the remaining Physics (PHYS151/L, 170/L, 272/L). This action plan aligns with *HGI Action Strategy 2: Implement structural improvements that promote persistence to attain a degree and timely completion*, and *HGI Action Strategy 4: Solidify the foundations for Hawai'i CC at Pālamanui, our newest campus, and establish large-scale student support services for Native Hawaiians, low-income students, and the under-represented populations served.* When the Manono renovation is completed and the Physics instructor is hired in 2024, we plan to offer our own AS-NSCI Physics courses and in-person labs on both campuses. Students on our island will be able to take all required courses from our faculty, which will provide better support and mentoring opportunity by the program faculty and improve the persistence and graduation rate.

Action Plan 4: Establish an ongoing STEM tutoring and peer mentoring program on both campuses. This action plan aligns with *HGI Action Strategy 2: Implement structural improvements that promote persistence to attain a degree and timely completion*, and *HPMS Action Strategy 3: UH aspires to be the world's foremost indigenous serving university and embraces its unique responsibilities to the indigenous people of Hawai'i and to Hawai'i's indigenous language and culture. To fulfill this responsibility, the university ensures active support for the participation of Native Hawaiians and supports vigorous programs of study and support for the Hawaiian*

language, history, and culture. In addition to the Native Hawaiian student success agenda within the Hawai‘i Graduation Initiative, the following tactics align with the thematic areas set forth in Hawai‘i Papa O Ke Ao, UH’s plan for a model indigenous-serving university. We will continue working to establish a robust STEM tutoring and peer mentoring program. The Manono campus already has a designated space (the STEM center) for this purpose. Currently B2B-STAMP-Two (Bridge to the Baccalaureate: Strategic Alliance for Minority Participation) grant pays stipend for peer mentors. We will have this fund for at least another year. For the future, we will look for additional fundings to increase the pool of STEM peer mentors.
This action plan also aligns with *HGI Action Strategy 4: Solidify the foundations for Hawai‘i CC at Pālamanui, our newest campus, and establish large-scale student support services for Native Hawaiians, low-income students, and the under-represented populations served.* The B2B-STAMP-Two grant funding is available for all STEM students regardless of where they live.
Eventually, we would like to have a designated study and tutoring space on the Pālamanui campus. We will work with the Pālamanui director to identify a designated STEM room.

Action Plan 5: Complete CHEM161L, CHEM162, CHEM162L assessments, and add new courses on the assessment schedule. This action plan aligns with *HGI Action Strategi 2: Implement structural improvements that promote persistence to attain a degree and timely completion.* We will complete the Closing The Loop assessments for the three chemistry courses. We will also add the two new biology courses (BIOL275 and BIOL275L) to the future assessment schedules.

Action Plan 6: Increase awareness the STEM pathway through high school and community outreach. This action plan aligns with *HGI Action Strategy 1: Strengthen the pipeline from K–12 to the university to improve college readiness and increase college attendance*. We will continue to actively engage in various outreach opportunities next year. Our goal is to strengthen the already existing relationships and create additional connections with high school administrators, college counselors, and STEM teachers.

Action Plan 7: Funding for lab supplies, equipment, teaching materials, and peer mentors. This action plan aligns with *HPMS Action Strategy 1: Employ best practices in management, administration, and operations, HPMS Action Strategy 2: Increase opportunity and success for students and overall cost-effectiveness by leveraging academic resources and capabilities across the system,* and *HPMS Action Strategy 5: Diversify resource base beyond state appropriations and tuition to support public higher education in Hawai‘i.* To support student succeed, faculty need professional development and access to up-to-date teaching resources including lab equipment as well as teaching softwares. Most of the department budget is used primarily for perishable lab materials and reagents, and there are usually not enough funds allocated for replacing or purchasing new equipment. We will continue to work with UH Foundation so that we can continue to offer innovative curriculum that meet the student needs. Currently, we have several lab equipment needs that are beyond our regular department budget.
1) Dissecting Scopes: This was also listed on our equipment needs request submitted in Spring 2023. Since COVID and the completion of the renovation of the STEM building, we moved the non-BSL-2 (microbe free) labs from the BSL-2 lab classroom in Manono 386 to the STEM classroom A to provide a larger learning space for students who do not need to be in the higher bio-

security level space. We separated all equipment and materials into the two labs. This has left us with a shortage of dissecting scopes for both labs since two of the five total scopes were actually broken during COVID. A total of 10 dissecting scopes is needed to maintain labs in both rooms. Currently, we have 3 working dissecting scopes.
2) -80-degree Freezers: This request was included in the resource request on the 2022 AS-NSCI Program Review, and also on the department equipment needs request submitted in Spring 2023. The development of a new and needed AS-NSCI lab course (BIOL275L) reinforced the need for a -80C freezer for both campuses to maintain reagents and bacterial strains long term. A -80C freezer would allow us to avoid ordering these expensive stocks every year for multiple classes (MICRO140L, BIOL171L, BIOL172L, and BIOL275L) and eliminate the need to transport materials between two campuses all the time. Overall, it will be much more efficient and cost effective, and allows us to utilize our resources in other much-needed places to support and teach our students who are majoring in allied health and in STEM, which trains students for high demand workforce. We are specifically requesting the smallest possible -80C freezer.

5. Resource Implications

Special Resource Requests not included in operating "B" budget *

☐ **I am NOT requesting additional resources for my program/unit.**

☑ **I AM requesting additional resource(s) for my program/unit.**

Total number of items being requested: _____4_____(4 items max.)

For each item requested, make sure you have gathered the following required information and all relevant documentation before you upload this Review; you will submit all information and attachments for your **Resource Request as part of your Review document submission via the*

Hawaii CC - Program & Unit Review Submission portal
https://hawaii.kualibuild.com/app/builder/#/app/60ef56c477b0f470999bb6e5/run

✔ **Item Description:**

1) Manono lab coordinator (APT)
2) Pālamanui lab coordinator (APT)
3) 7 Dissecting Microscopes
4) Two -80-degree Freezers

✔ **Justification:**

1) Lab coordinators (APTs) are desperately needed to support the needs of the in-person labs. These full-time positions were lost due to the pandemic position cuts. Now that we are going back to more in-person classes and the number of labs have increased, we need these positions back to procure and inventory equipment and supplies, prepare reagents and live bacterial cultures, oversee and process hazardous

wastes to meet the OSHA regulations and safety requirements, maintain lab equipment and lab facility in working order, update training records of all lab personnel, be the point of contact for the lab with instructors, other lab coordinator, and other campus units, vendors, and other outside contacts. **Priority Criteria 1, 2, and 3**

a) **one Manono Lab Coordinator (full-time APT)** to support science labs. These labs are located in multiple buildings on the Manono campus, including a new Physics lab in Building 386.
b) **one Pālamanui Lab Coordinator (full-time APT)** to support science labs, as well as to act as a contact person for outside programs (either from HawCC, other UH campuses, or outside organizations) requesting to use the Pālamanui lab classrooms.

2) Seven Dissecting Scopes: This was also listed on our equipment needs request submitted in Spring 2023. Since COVID and the completion of the renovation of the STEM building, we moved the non-BSL-2 (microbe free) labs from the BSL-2 lab classroom in Manono 386 to the STEM classroom A to provide a larger learning space for students who do not need to be in the higher bio-security level space. We separated all equipment and materials into the two labs. This has left us with a shortage of dissecting scopes for both labs since two of the five total scopes were actually broken during COVID. A total of 10 dissecting scopes is needed to maintain labs in both rooms. Currently, we have 3 working dissecting scopes. **Priority Criteria 2, 4 and 6**
3) Two -80-degree Freezers: This request was made on the last year's Program Review, and also was requested on the department equipment needs submitted in Spring 2023. This will reduce the cost of the lab expenses in the long run because we can deep freeze and save reagents and bacterial strains in -80 degrees for many years and defrost to use when we need them. This not only save the lab expenses and shipping costs, but also free us from any potential shipping loss or delay. Moreover, this eliminates the required state and UH approvals needed every time we order bacterial stocks. We are requesting the smallest size freezer that fits in the space we have, and work with 115V outlet. The freezers will be used by multiple biology labs. The quoted cost for Spring 2023 with S&H and tax was $7,250/each. We expect the cost to increase in 2024. **Priority Criteria 1, 2, 3, and 6**

✔ **Priority Criteria** (must meet at least one of the following):

1. Ensure compliance with mandates and requirements such as laws and regulations, executive orders, board mandates, agreements and contracts and accreditation requirements.
2. Address and/or mitigate issues of liability, including ensuring the health, safety and security of our Kauhale.
3. Expand our commitment to serving all segments of our Hawaii Island community through Pālamanui and satellite centers
4. Address aging infrastructure.
5. Continue efforts to promote integrated student support in closing educational gaps.
6. Leverage resources, investments with returns, or scaling opportunities
7. Promote professional development.

CATEGORY	Category-Specific Information Needed			
Equipment	Estimated Date Needed **As soon as possible**	Quantity / Number of Units; Cost per Unit **1) Seven dissecting microscopes, $ 364.30/ea** **2) Two -80 benchtop freezers Cost: $7,250/ea**	Total Cost (with S&H, tax) **1) 3,000** **3) $14,500**	On Inventory List (Y/N); Decal #, Reason replacing
Facilities Modification	Estimated Date Needed	Total Cost	Monthly/Yearly Recurring Costs	Utilities Required
Personnel Resource	Estimated Date Needed **As soon as possible**	FTE; Position Type; Position Title **1) Manono Lab coordinator (APT)** **2) Pālamanui Lab coordinator (APT)**	Estimated Salary **1) $60,000/year** **2) $60,000/year**	Was an Existing Position Abolished? (Y/N); Position # **1) Yes** **2) Yes**

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