

2024 Annual Report of Program Data Natural Science (A.S.)



1. Program or Unit Mission

Program or Unit Mission or Purpose Statement. (This statement will likely not change each year. You may copy/paste from last year unless there was a significant change.)

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

For the past year, please indicate which program student learning or unit/service outcomes were assessed, assessment results, and what changes will be made to address the results.

No Program Student Learning Outcomes were scheduled for assessment during 2023-2024.

3. Analysis of the Program/Unit

The following analysis uses ARPD data

<https://uhcc.hawaii.edu/varpd/index.php?y=2024&c=HAW&t=GPP&p=3110>). This year the performance status is not included with the published data.

Demand: demand for the Natural Science program is maintaining steady (within the margins of error) on all counts. Over the five years of data provided, the number of majors has fluctuated between 46-51 with the current number of 48 (a slight (5%) drop from the 2022-23 high) and the number of native Hawaiians has fluctuated from 9-12, with 10 in the current year, the same number as the previous year. The number of classes offered dropped from 21 to 13 over the past year.

Efficiency: Efficiency remains steady with slight increases and decreases across the five-year period. Average class size is 10 (the same as the previous year) with a slightly lower fill rate (45.5% compared to 50.1%). The number of FTE BOR faculty dropped from 3 to 2 after the resignation of one of our faculty and the number of majors to faculty rose from 17 to 24. We expect to fill the vacant position in the next year.

Effectiveness: Effectiveness also remains steady over the 5-year period with statistically small increases and decreases between years. The number of successful completions dropped from 82% to 79% from the previous year but still remains over the five-year average of 74.2%. Students who withdrew with a grade of W has declined steadily over the five year period. The 2023-24 withdrawal was 7 students: 46% lower than 2022-23 and 62% lower than the five year average of 18.6 Withdrawals per year. The number of degrees dropped slightly (from 5 to 4) over the past year, but the number of transfers with a degree from the program rose 47% over the past year (from 9 to 17 and the number of transfers without a program degree rose moderately from 4 to 6 (33%). Transfers (both with and without a degree) were higher this year than the average over the 5-year reporting period ($\bar{x} = 11.2$ with a degree, $\bar{x} = 3.6$ without a degree). Because Hawaii CC has been unable to offer physics labs and courses on our campus, many students transfer to a 4-year program before completing their science requirements. In 2025 we will be opening a physics lab on the Manono campus and hiring a physics instructor. We expect to see more degrees granted before transfer after all courses can be offered.

Workforce outlook: According to the ARPD, there is a 70% gap in the number of available jobs in Hawaii County and number of student in the NSCI program (Figure 1). This indicates that there is a healthy job market for students who successfully complete the program.

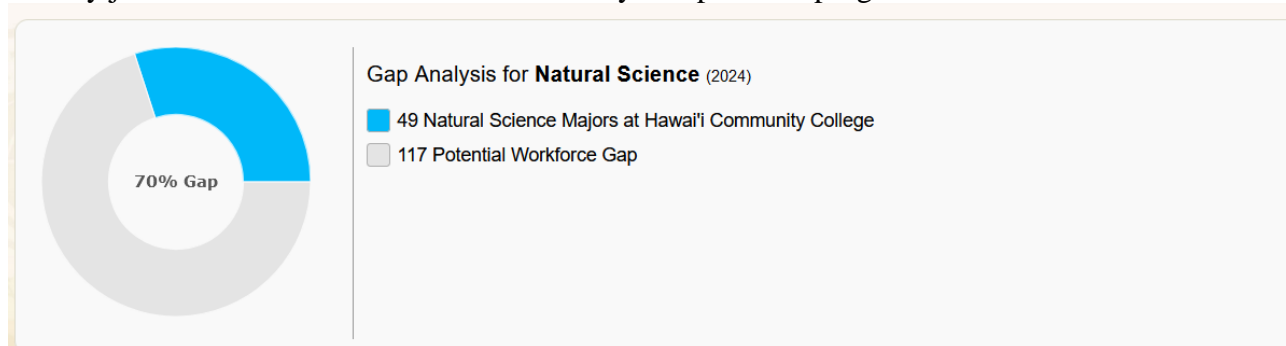


Figure 1. Gap Analysis for natural science jobs in Hawaii County and NSCI majors.

4. Action Plan

Action Goal 1: infrastructure

Since identifying this goal in 2020, we have successfully built a physics lab at the Pāalamanui campus and will have completed one at the Manono campus before the next annual review

Action Goal 2: faculty support

Since identifying this goal in 2020, we have been working on meeting it. By the time of the next annual review we expect to have laboratory coordinator positions created and laboratory coordinators hired at both Pālanuanui and Manono campuses.

Action Goal 3: increased funding for laboratories

Since identifying this goal in 2020, we have struggled to meet this goal. We have found grants for some of our lab supplies and equipment needs but still do not have the funds for needed but expensive items

Action Goal 4: professional development

Since identifying this goal in 2020, we have continued to work on this goal so that faculty can stay current in their fields of specialty

Action Goal 5: accurate data

Since identifying this goal in 2020, we have continued to provide feedback on inaccurately presented ARPD, however, the problem continues.

Action Goal 6: FYE course

Since identifying this goal in 2020, we have discussed the idea but have not moved forward on developing a First Year Experience course for NSCI majors

Action Goal 7: HawCC/UHH Marine Science pathway

Since identifying this goal in 2020, we have made significant progress on this goal with the development of a Marine Options Program (MOP) and ASC at Hawaii CC.

Action Goal 8: Increased faculty office space

Since identifying this goal in 2020, we have worked with administration to build a STEM Center at Manono campus with extra classrooms and extra faculty office space. Currently our space needs are met.

Action Goal 9: Improved teaching spaces

Since identifying this goal in 2020, we have worked to get funding to build a new physics lab on Manono campus (completed Fall 2024) and more lab space in the STEM Center. No new space has been developed at the Pālanuanui campus, but due to the switch to online-heavy course offerings, lab and classroom space is now sufficient.

Action Goal 10: tutoring

Since identifying this goal in 2020, we have brought in two new grants that support STEM tutors on both campuses. This goal has been tentatively met.

Action Goal 11: laptops and software

Since identifying this goal in 2020 the covid pandemic led to the purchase of more laptop computers by Hawaii CC. Currently all faculty have laptops assigned to them.

5. Resource Implications

Special Resource Requests not included in your operating “B” budget

Detail any special resource requests not funded by your regular operating budget, including reallocation of existing resources (physical, human, financial) to support action or Perkins plans.

**Note that CTE programs seeking future funding via UHCC System Perkins proposals must reference their ARPD Section 4. Action Plan and this ARPD Section 5. Resource Implications to be eligible for funding.*

☐ 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.)

✓ **Item Description: Laboratory Equipment: various, individual pricing from \$100-\$2,200, total price \$15,000**

✓ **Justification: STEM laboratory courses need to use higher-end technical equipment from water quality sensors and meters to spectrophotometers. Currently the majority of the labs do not have modern equipment to teach with and this negatively affects students who miss important lessons and fail to learn to use the equipment that will be used in their future employment.**

✓ **Alignment to the [Ka‘ao Ka‘ika‘i Strategic Plan AY2023 - AY2029](#):**

Each resource request must align with one or more of our Strategic Plan Core Commitments:

Ka‘ika‘i Kuleana	Fulfill kuleana to Native Hawaiians and Hawai‘i Island.
Ka‘ika‘i Haumāna	Develop successful students for a better future.
Ka‘ika‘i Oihana	Meet Hawai‘i Island’s workforce needs of today and tomorrow.
Ka‘ika‘i Kauhale	Build and Maintain the Wellbeing of the College Kauhale.

ALLOWED CATEGORIES	Category-Specific Information Needed			
Equipment	Estimated Date Needed March 2025	Quantity / Number of Units; Cost per Unit Multiple, spreadsheet available.	Total Cost (with S&H, tax) \$15,000	On Inventory List (Y/N); Decal #, Reason replacing Not on list

✓ **Item Description: Dissecting Microscopes (30)**

✓ **Justification:** These microscopes are needed in a variety of courses for teaching curricula in STEM. They would allow our students to gain access to learning skills that are transferable to the workforce in areas of Nursing, Agriculture, Environmental sciences among others.

✓ **Alignment to the [Ka'ao Ka'ika'i Strategic Plan AY2023 - AY2029](#):**

Each resource request must align with one or more of our Strategic Plan Core Commitments:

Ka'ika'i Kuleana	Fulfill kuleana to Native Hawaiians and Hawai'i Island.
Ka'ika'i Haumāna	Develop successful students for a better future.
Ka'ika'i Oihana	Meet Hawai'i Island's workforce needs of today and tomorrow.
Ka'ika'i Kauhale	Build and Maintain the Wellbeing of the College Kauhale.

ALLOWED CATEGORIES	Category-Specific Information Needed			
Equipment	Estimated Date Needed March 2025	Quantity / Number of Units; Cost per Unit \$723	Total Cost (with S&H, tax) \$25,000	On Inventory List (Y/N); Decal #, Reason replacing Not on list

✓ **Item Description: Two -80-degree Freezers**

Justification: 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.

Alignment to the [Ka'ao Ka'ika'i Strategic Plan AY2023 - AY2029](#):

Each resource request must align with one or more of our Strategic Plan Core Commitments:

Ka'ika'i Kuleana	Fulfill kuleana to Native Hawaiians and Hawai'i Island.
Ka'ika'i Haumāna	Develop successful students for a better future.

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Ka'ika'i Kauhale	Build and Maintain the Wellbeing of the College Kauhale.

ALLOWED CATEGORIES	Category-Specific Information Needed			
Equipment	Estimated Date Needed March 2025	Quantity / Number of Units; Cost per Unit \$7,250	Total Cost (with S&H, tax) \$16,000	On Inventory List (Y/N); Decal #, Reason replacing Not on list

✓ **Item Description** [Texas Instruments TI-84 Plus](#)

- ✓ **Justification:** To support students in their college math courses. The purchase of calculators will create uniform syntax entry, applications, and learning opportunities within all courses. These calculators have the capability to complete all calculations necessary for the Math 78C, Math 75X, Math 82X, Math 100, Math 115, Math 135, Math 140, Math 241, and Math 242. If our students are given uniform calculators to use in their developmental courses, they will have the opportunity to build skills and confidence in the use of the calculators and can take those skills to their college level courses and ultimately be more successful in them.

✓ **Alignment to the** [Ka'ao Ka'ika'i Strategic Plan AY2023 - AY2029:](#)

Each resource request must align with one or more of our Strategic Plan Core Commitments:

Ka'ika'i Kuleana	Fulfill kuleana to Native Hawaiians and Hawai'i Island.
Ka'ika'i Haumāna	Develop successful students for a better future.
Ka'ika'i Oihana	Meet Hawai'i Island's workforce needs of today and tomorrow.
Ka'ika'i Kauhale	Build and Maintain the Wellbeing of the College Kauhale.

ALLOWED CATEGORIES	Category-Specific Information Needed			
Equipment	Estimated Date Needed August 2025	Quantity / Number of Units; Cost per Unit 20; \$120	Total Cost (with S&H, tax) \$2,500	On Inventory List (Y/N); Decal #, Reason replacing Not on list