

HAWAII COMMUNITY COLLEGE PROGRAM REVIEW REPORT

ASSOCIATE in SCIENCE NATURAL SCIENCES ASNS

March, 2015

July 1, 2013 to June 30, 2014

Initiator: Laura Brezinsky

Writers: Lisa Kaluna, Denise D'Haanens-Luker, Chris Manaseri,
Michelle Phillips, Pamela Scheffler,

Program Description

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 Laura Brezinsky by email (laura@hawaii.edu).

3yr Review Report Summary – *If this Program is scheduled for Comprehensive Review, this section must be more robust and detailed explaining changes made to the program in the past 3 years; funding received since last 3 years and results from funding, etc.*

N/A

CERC Comments and Feedback --

CERC Comments as listed in most recent Comprehensive Review.

N/A

Part I: Quantitative/Qualitative Indicators

A. Annual Report of Program Data (ARPD) Data Grid

<http://www.hawaii.edu/offices/cc/arpd/instructional.php?year=2014&action=quantitativeindicators&college=HAW>

B. ARPD Data Analysis

Demand Health	Efficiency Health	Effectiveness Health
Cautionary	Cautionary	Unhealthy

Overall Health

This is a brand new program at HawCC that was not available during the time span covered by this report. As advised by the college VCAA (Joni Onishi), we will use this report to focus on future program needs.

Performance Funding (Graduation, Native Hawaiian, STEM, Transfer, Degree) -- *Describe how your program contributed to performance funding in these areas? If not, why and how do you plan to contribute in the future?*

This program did not contribute to performance funding because this program did not exist during this reporting period. This program should contribute to STEM performance funding in the future.

C. Trends & Other Factors -- *Describe trends including comparisons to any applicable standards, such as college, program, or national standards from accrediting associations, etc. Include, if relevant, a summary of Satisfaction*

Survey Results, special studies and/or instruments used, e.g., CCSSE, etc. Describe any external factors affecting this program or additional program changes not included elsewhere.

Global trends indicate that the United States is lagging behind many of our competitors in the proportion of college graduates receiving STEM degrees (<http://www.ncee.org/2014/05/statistic-of-the-month-engineering-and-science-degree-attainment-by-country/>). This is a disturbing trend for a country that has historically led the field in innovation. In response to this apparent shortfall, there is a national trend to support increased STEM enrollment and successful graduation. The UH CC system has established a state-wide Natural Science Degree that transfers seamlessly amongst their campuses. In addition, the college is now providing increased focus on STEM, and resources are being examined that will support this effort.

Part II: Analysis of the Program

A. Alignment with Institutional Mission & Learning Outcomes (ILOs)

1) College Mission Alignment

Hawai`i Community College (HawCC) promotes student learning by embracing our unique Hawai`i Island culture and inspiring growth in the spirit of "E `Imi Pono." Aligned with the UH Community Colleges system's mission, we are committed to serving all segments of our Hawai`i Island community.

Hawaii Community College has never had a STEM program in the past. Therefore, this program will provide STEM education to a community that previously did not have access. Many of our science courses use the unique Hawaii island natural and technological resources to enhance learning.

2) ILO Alignment

a) **ILO1:** *Our graduates will be able to communicate effectively in a variety of situations.*

The ASNS prepares students to communicate effectively by requiring students to enroll in Eng100 (Expository Writing/Composition I), Eng102 (College Reading) and SpCo 251 (Public Speaking). Students are also required to participate in multiple in-person laboratories and classroom settings that require written reports and effective collaboration and communication with their classmates. All ASNS students are encouraged to participate in Service-Learning activities that require effective communication in the field and in a variety of professional settings.

b) **ILO2:** *Our graduates will be able to gather, evaluate and analyze ideas and information to use in overcoming challenges, solving problems and making decisions.*

The ASNS is a STEM program. Gathering, evaluating and analyzing data, ie Scientific Method, is at the very core of all STEM fields. All of our graduates will be versed in the effective application of Scientific Method in the course of Laboratory and Classroom learning.

c) **ILO3:** *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 ASNS, as with all HawCC programs, respects diversity at all levels. We offer courses in Ethnobotany, native habitats, and Geography of Hawaii, among others.

B. Program Mission

The Associate in Science degree in Natural Science at Hawaii Community College prepares students to transfer to four-year STEM programs. This 60-credit program provides clear, explicit, coherent pathways for students intending to transfer into Science, Technology, Engineering and Mathematics (STEM) majors at baccalaureate institutions. The program provides curricula that focus on science and mathematics as well as more advanced research and mentoring experiences Targeted advising and appropriate course sequencing enable efficient transfer of STEM students into 4-year degree programs.

C. Strengths and Weaknesses

1) Strengths (Top 3 defined)

State Strength	Using supporting evidence, describe why this is a strength
Program Curriculum	This degree is offered at all Hawaii CC campuses to allow transfer across the system
Transfer degree	Degree transfers to UHH with automatic admissions.
STEM	Provides the first and only Science degree program at HawCC

2) Weaknesses (Top 3 defined)

State Weakness	Using supporting evidence, describe why this is a Weakness	Proposed solution
Facilities	HawCC lacks the necessary laboratory space and equipment to support this program.	Work with administration to create more laboratory dedicated space and required equipment
Faculty/Staff	The college lacks sufficient faculty or staff to teach and support General Chemistry, Physics and the expanding life science course listings.	Secure more faculty and staff positions for this program.
STEM Center	STEM is extremely rigorous. A STEM Center would provide the necessary support to facilitate student success. For this reason, STEM Centers are commonly included in most STEM programs.	Develop a STEM Center

Part III: Course/Program Assessment

A. Course(s) Assessed -- *List the course(s) (Alpha/#) assessed during this reporting period.*

Information has not been provided by the Department Chair (James Schumaker). In addition, most of the program courses have not been offered at HawCC and are provided to our ASNS students through a cooperative agreement with UHH.

B. Expected Level of Achievement -- Describe the different levels of achievement for each characteristic of the learning outcome(s) that were assessed. That represented “excellent,” “good,” “fair,” or “poor” performance using a defined rubric and what percentages were set as goals for student success; i.e. 85% of students will achieve good or excellent in the assessed activity.”

--

C. Assessment Strateg(y/ies) & Instrument(s) -- Describe what, why, where, when, and from whom assessment artifacts were collected.

Strategy/Instrument 1:

D. Results of Course Assessment - Provide a summary of assessment results.

<p>Example: RESULTS: 86% (6/7) program graduates met or exceeded expectations: completed SUBS 140,245, 268 with a “C” grade or better. 1/7 students received an incomplete grade.</p>

Changes Implemented as a result of Assessment	Evaluation of the changes that were implemented
Change 1:	Evaluation of Change 1:

E. Next Steps -- Based on your experience with Assessment so far, what do you plan to do in the future? Include any changes that are planned for the Program as a result of course assessments. For example, changes to rubrics, changes to level of expectation, any Program and/or curriculum modifications, etc.

--

F. Evidence of Industry Validation for CTE Programs

N/A

Part IV Action Plan

A. 20% Course Review

a) Courses Reviewed -- List the Course Alpha/Number and Course Title of courses that were reviewed in AY 2013-2014.

Information not provided by the Department Chair (James Schumaker)

Course Alpha Number	Course Title

Create 2 additional science laboratories

Alignment of Goal 1 to ILO(s)

Explain how Goal 1 aligns with ILO(s) and provide supporting rationale

ILO 1. Our graduates will be able to communicate effectively in a variety of situations.

Participation in laboratory activities requires effective communication with instructors as well as other students. Currently, HawCC does not have the facilities to offer many of the laboratory courses required by this program. In addition, our existing biological lab is consistently over capacity. We have developed a cooperative agreement with UHH to all allow the ASNS students to take these required courses at UHH. By creating our own science laboratory facilities, all HawCC students will have access to these activities.

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.

The primary goal of laboratory instruction is to teach students to gather, evaluate and analyze information. Currently, HawCC is severely limited with respect to laboratory space and equipment.

Alignment of Goal 1 to Strategic Plan (SP)

http://hawaii.hawaii.edu/docs/HawCCStrategicPlan_2008-2015_10-29-09.pdf

Explain how Goal 1 aligns with an Action Strategy in the Strategic Plan (SP). Include SP Reference(s) and provide supporting rationale

Appendix 2.2 a. Explore additional funding sources through other agencies.

Creating 2 new science laboratories will require substantial funding. The HawCC STEM Committee will be exploring additional funding through federal agencies such as NSF.

Alignment of Goal 1 to Academic Master Plan (AMP)

Academic Master Plan: http://hawaii.hawaii.edu/docs/HawCCStrategicPlan_2008-2015_10-29-09.pdf

AMP Appendix: <http://hawaii.hawaii.edu/docs/academic-master-plan-appendix-priority-actions.pdf>

Indicate which Academic Master Plan (AMP) Action Priorities Goal 1 aligns with and provide supporting reasoning.

	STEM	Graduation Remediation Workforce	Student Transfer	Underserved Populations	Green Curricula	Program Development
Establishing 2 additional laboratories will contribute to the development of a program that is independent of UHH	X					X

UH System Collaboration (if applicable)

As mentioned, this is a transfer degree that aligns with UHH and provides automatic admission to all graduates and it aligns with all of the other ccs' Natural Science degree programs. But HawCC does not have the facilities required to offer this program independently. Until HawCC has the resources required for this program, we will continue to work collaboratively with UHH to provide all of the required courses that are included in the curricula.

Calendar of planned activities for Goal 1 -- *In chronological order, briefly describe the procedures/activities planned to achieve Goal 1*

Activity	When will the activity take place
Investigate the renovation of 396-A and B (The nursing Lab) into 1 or 2 laboratories and a STEM center. Nursing will be moving to the newly renovated Hale Aloha.	Spring 2015-Fall 2015
Assess equipment needs that will allow minimal course offerings with the facilities that we have currently.	Ongoing

Define Goal (Action Strategy) 2

Create 2 additional faculty positions (Chemistry and Physics)

Alignment of Goal 2 to ILO(s)

ILO2: *Our graduates will be able to gather, evaluate and analyze ideas and information to use in overcoming challenges, solving problems and making decisions.*

As mentioned, the primary goal of all science programs is to teach students to gather, evaluate and analyze information. The Math and Natural Science Department does not have appropriate faculty to teach many of our science courses. Providing faculty to teach all of the required courses will increase student access.

Alignment of Goal 2 to Strategic Plan (SP)

Appendix 2.4 d. *Develop focused degrees that lead to a four-year degree pathway and market to students.*

HawCC needs these additional faculty members to provide the instructional resources required to offer this program independently. This program is a transfer degree that was designed to provide a 4-year degree pathway. Graduates will receive automatic admission to UHH in Life Science.

Alignment of Goal 2 to Academic Master Plan (AMP)

Academic Master Plan: http://hawaii.hawaii.edu/docs/HawCCStrategicPlan_2008-2015_10-29-09.pdf

AMP Appendix: <http://hawaii.hawaii.edu/docs/academic-master-plan-appendix-priority-actions.pdf>

Indicate which Academic Master Plan (AMP) Action Priorities Goal 2 aligns with and provide supporting reasoning.						
	STEM	Graduation Remediation Workforce	Student Transfer	Underserved Populations	Green Curricula	Program Development
Establish 2 new faculty positions to fill gaps in instructional staff.	X					X

UH System Collaboration (if applicable) –

- Include collaboration efforts w/other campuses.
 - Include alignment with the UHCC Initiatives <http://uhcc.hawaii.edu/OVPCC/> (listed on the left of John Morton's picture).
- N/A

Calendar of planned activities for Goal 2 -- *In chronological order, briefly describe the procedures/activities planned to achieve Goal 2*

Activity	When will the activity take place
Hire 2 new science faculty members	Spring 2015- Fall 2015

Define Goal (Action Strategy) 3

Create a STEM Center

Alignment of Goal 3 to ILO(s)

ILO2: *Our graduates will be able to gather, evaluate and analyze ideas and information to use in overcoming challenges, solving problems and making decisions.*
 STEM centers provide an integrated learning environment that support student success.

Alignment of Goal 3 to Strategic Plan (SP)

http://hawaii.hawaii.edu/docs/HawCCStrategicPlan_2008-2015_10-29-09.pdf

Explain how Goal 3 aligns with an Action Strategy in the Strategic Plan (SP). Include SP Reference(s) and provide supporting rationale. If Goal 3 does not align with a listed strategy, explain how it aligns to a SP Performance measure. Then, propose a new action strategy in the next field.

Appendix 2.3 f. *Provide tutoring options for students in courses with low success rates.*
 The STEM center will provide tutors, computers for student use and a study area that will all contribute to student success.

Alignment of Goal 3 to Academic Master Plan (AMP)

Academic Master Plan: http://hawaii.hawaii.edu/docs/HawCCStrategicPlan_2008-2015_10-29-09.pdf

AMP Appendix: <http://hawaii.hawaii.edu/docs/academic-master-plan-appendix-priority-actions.pdf>

Indicate which Academic Master Plan (AMP) Action Priorities Goal 3 aligns with and provide supporting reasoning.

	STEM	Graduation Remediation Workforce	Student Transfer	Underserved Populations	Green Curricula	Program Development

Create a STEM Center	X					X
----------------------	---	--	--	--	--	---

UH System Collaboration (if applicable) –

- Include collaboration efforts w/other campuses.
- Include alignment with the UHCC Initiatives <http://uhcc.hawaii.edu/OVPCC/> (listed on the left of John Morton's picture).

The HawCC STEM committee will be collaborating with other CC campuses in designing a STEM Center

Calendar of planned activities for Goal 3 - In chronological order, briefly describe the procedures/activities planned to achieve Goal 3

Activity	When will the activity take place
Site visit to the KCC STEM Center	March 6, 2015
Develop plans to renovate 396-A, B as our new STEM Center	Spring 2015-Fall 2015

Part V: Resource Implications

A. Cost Item 1

Laboratories and equipment	<ul style="list-style-type: none"> • Facilities • Equipment 	\$2,000,000
----------------------------	---	-------------

Alignment of Cost Item 1 to Strategic Plan (SP)

See Above

Alignment of Cost Item 1 to Academic Master Plan (AMP)

See Above

Alignment of Cost Item 1 to Strength(s)

No Alignment

Alignment of Cost Item 1 to Weaknesses(s)

Lack of facilities is listed as our #1 weakness.

B. Cost Item 2

2 Faculty positions	<ul style="list-style-type: none"> ● Personnel 	\$170,000 W/ Fringe
---------------------	---	------------------------

Alignment of Cost Item 2 to Strategic Plan (SP)

See Above

Alignment of Cost Item 2 to Academic Master Plan (AMP)

See Above

Alignment of Cost Item 2 to Strength(s)

No Alignment

Alignment of Cost Item 2 to Weaknesses(s)

Explain how Cost Item 2 aligns with Weakness (From Part II. Section C). Address and provide supporting rationale. If there's no alignment, write "No Alignment."

The need for additional faculty members is listed as our #2 weakness.

C. Cost Item 3

STEM Center	Type <ul style="list-style-type: none"> ● Personnel ● Facilities ● Equipment 	\$1,000,000
-------------	--	-------------

Alignment of Cost Item 3 to Strategic Plan (SP)

See Above

Alignment of Cost Item 3 to Academic Master Plan (AMP)

See Above

Alignment of Cost Item 3 to Strength(s)

No Alignment

Alignment of Cost Item 3 to Weaknesses(s)

A STEM Center is listed as our #3 weakness

Part VI: Justification for Program Existence

Write a brief statement describing the value of this Program to the College. Is your Program sustainable? If so, briefly state why. If not, briefly state why the College should continue to keep your Program open.

(Sources include Industry Validation, ARPD Data Validation, Trends and Other Factors.)

The Associate in Science in Natural Science is a newly approved program at HawCC. This program was approved by the HawCC faculty, the HawCC administration and the BOR. There is a national trend to improve STEM programs.