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Palau Community College is an accessible public educational institution helping to meet the technical, academic, cultural, social, and economic needs of students and communities by promoting learning opportunities and developing personal excellence.

INSTRUCTIONAL PROGRAM THREE YEAR REVIEW

Academic Program

Environmental/Marine Science Program

Period of Three Year Review

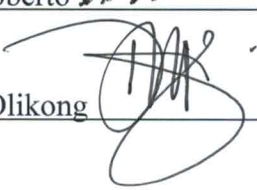
August (Fall) 2018 to July (Summer) 2021

Completed By: Rilang Roberto 
Program Instructor(s)


Date: May 04, 2022 *May 4, 2022*

Program/Department Chair: Rilang Roberto 

Date: May 04, 2022 *May 4, 2022*

Dean of Academic Affairs: Deikola Olikong 

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Program Review Narrative Summary

- Summary of the academic program purpose

The history of the Environmental/Marine Science program at Palau Community College is rooted in results of three separate needs assessments for the Republic of Palau dating back to 1996. In April of 1996, the Palau National Master Development Plan identified tourism, fisheries, and agriculture as the three major sectors targeted for development to sustain the future of Palau's economy. These three factors became indicators of anticipated stress on the natural environment and thus the need to have professionals working to protect our natural resources. In October of 1998, Japan International Cooperative Agency (JICA) prepared a study and identified PCC as the major source of potential employees for various environmental based ventures such as tourism and fisheries. The JICA study provided a pathway for a needs assessment by PCC in February 2000, which focused on employment opportunities in the community for prospective students trained in the area of environmental/marine science. Results of these studies collectively led to the development of the Environmental/Marine Science (EMS) program at Palau Community College (PCC) in the fall semester of 2001. Initial funding to start the EMS program at PCC in the fall semester of 2001 was provided thru the Minority Science Engineering and Improvement Program (MSEIP). The goals of the Environmental/Marine Science program at PCC are to: (1) provide academic and technical training for students who choose to enter the workforce after graduating from PCC; (2) provide the option for government employees to upgrade their skills; and (3) provide a solid background for students interested in pursuing a degree at a four year institution. After successfully completing all the requirements of the EMS program, students have the capability to apply scientific methods and technical laboratory skills, apply field research techniques, and conduct individual and team research.

- The relationship of program to the college Mission Statement

Training and educating the Palauans to become knowledgeable and skilled managers and stewards of their natural resources continues to be a priority of the national government of the Republic of Palau and one of the intended program outcomes of the Environmental/Marine Science program at Palau Community College. As the country continues to foresee tourism, fisheries, and agriculture as the mainstay of its economy, Palau Community College, through the EMS program will continue to be prepared to develop human resources to meet the anticipated demands on our natural environment and resources, and ensure its sustainability for the future generations. As an accessible public educational institution, PCC, through the EMS program continues to meet the technical, academic, cultural, social, and economic needs of students and communities in Palau by promoting learning opportunities and develop Palau's human resources by providing an avenue for Palauans to gain the academic and technical training to enter the natural resources management workforce after graduating from PCC. In addition, through the EMS program, PCC can offer the option for government employees to upgrade their skills in the field of environmental and/or marine science fields. Furthermore, PCC EMS program will continue to enhance the pre-existing program to continue to build a solid foundation for students interested in pursuing a degree at a four-year institution in a related science field.

- Summary of Program Data

- a. Figure 1 – Student Status

- A total of 315 students enrolled in ES core science courses from fall 2012 to spring 2021, a drastic decline in the enrollment Excluding the number of students who withdrew, an average of 73% students who enrolled in these science courses passed During fall 2019 to spring 2021 the declined of enrollment is seen due to COVID 19 pandemic.

- b. Figure 2 – Number of Graduates

- Five (5) students graduated during this reporting period

- c. Figure 3 – Class Information

- All science courses for the ES program has a maximum capacity of 20 students due to classroom and lab capacity limit, and boat load regulations for KSG that we must follow when taking students out on field trips. As such, most science courses offered had

enrollment of 20 or less. The only ES core science courses with histories of reaching full capacity are SC109, SC119, SC239, and SC249 mainly because they are required for other degree programs. In few instances, we made exceptions and increased capacity by 1 or 2 for these classes.

d. Figure 4 – Course Offering Information

- All EMS program science courses are four credit courses, with three contact hours for lecture and a required three contact hours for lab every week, with the exception of SC270 Field Studies. SC270 Field Studies is only three credit course with all contact hours dedicated to field investigations. On fall 2020, three contact lab hours were reduced to an hour and half.
- Only two science courses, SC109 and SC249, had hybrid online sections this reporting period. SC109 has always been a fall course while SC249 is a spring course. The hybrid online science courses meet once a week for the traditional three-hour lab. With COVID-19 pandemic, there is increase of hybrid courses.

e. Figure 5 – Faculty Information

- There were three full time instructors in the ES program from fall 2018 to summer 2021. The rest of the years of this assessment review, the ES program had only two fulltime instructors. Two fulltime instructors is insufficient, especially now with a new STEM degree program increasing the need to offer more science courses. From the data on Figure 5, the ES program is dependent on adjunct instructors, especially during the summer semester when the fulltime instructors are on their 10-2 vacation. There is an increase hiring of adjunct instructors on summer 2019, summer 2020, spring 2021 and summer 2021. One fulltime instructor resigned and another fulltime instructor replaces her, so far there are only two fulltime instructors as to date.

f. Table 1 – Faculty to Class Size Ratio Information

- Calculations were based on number of fulltime faculty each semester to total enrollment for all science courses taught by fulltime faculty. The same was repeated for the ratio of part-time instructors to total enrollment of students in the courses taught by part-time instructors.

- Summary of Student Learning and Curriculum

Ten (10) core science courses are required in the ES program. All course outlines were updated and validated. All course learning outcomes (CLO) are aligned with the program learning outcomes (PLO) and the institutional learning outcomes (ILO). Refer to Appendix C ES Program Map.

- Summary of Course Assessment Data

- a. How has assessment of course-level student learning outcomes led to improvement in program-level student learning?
 - Changes to course learning outcomes were not based on the results of the course assessments. They were mostly for the purpose of satisfying required format. As of the writing of this report, course assessment are being updated.
- b. How has assessment of program-level student learning outcomes led to certificate/degree program improvements?
 - There were no changes to program learning outcomes

- Summary of Evaluation of Previous Goals/Activities from Previous Cycle ()

- a. List actions identified in your last program review or in any other related college plan(s)*.
 - There is action plans were provided in the fall 2018 to summer 2021 ES program review, there were plans in place. See 5.0 Evaluation of Previous Program Review Action Plans for a summary of major activities for the ES program
- b. What measurable outcomes were achieved due to the actions completed?

The CPC have approved and integrate the changes made by previous program review into PCC General Catalog 2020-2024. Program modification included were to include the deletion of SC275, Modify SC 270 Field Study, Add MA 111 and EN114. There is short summery of the previous outcomes.

After 15 years and 32 program graduates, it was prime time to review the existing ES program. Although the program had been through a review before, the July 7, 2015 review was significant. This was the first time that ES alumni were invited to attend and participate in the roundtable discussion. The roundtable discussion with alumni was facilitated by the associate dean of academic affairs with the dean of academic affairs in attendance. Several alumni were invited but only ten (10) attended the review as some were unable to take time off from work. The alumni provided their opinions and criticisms on relevancy of program outcomes, student learning contents for the core courses, and recommended solutions to further strengthen the program.

Some of the alumni's comments and suggestions were validated upon careful review of the contents of the science core courses by the ES program faculty. With the alumni recommendations, these program modifications are being proposed with confidence that they will cause positive outcomes for the ES program. The proposed modifications are aimed at increasing the number of ES program alumni successfully matriculating to four-year colleges and universities to pursue and complete higher degrees. Furthermore, with the rapid advancement of technology in science, the laboratory and field research techniques in course contents warrant modification to keep up with the changing technologies of the 21st century. These changes will produce students with new skills and advanced and broader knowledge to be in employed in variety of science-related positions such as research assistants, laboratory technicians, managers of protected areas, and even science teachers.

In the program modification submitted to CPC for approval, the following are the proposed changes with justifications: The alumni agreed that there were many overlaps in the course contents (student learning outcomes) of SC170 Marine Biology and SC201 Introduction to Oceanography. Because these two courses are currently offered together during the same semester, there were a lot of redundancies in lectures. They recommended that the courses be combined into a single core course. Review of the course outlines and textbooks for SC170 and SC201 validated the statement from the alumni, thus the proposal of a new course called SC190 Introduction to Marine Science. This course being proposed is the combination of key concepts from SC170 Marine Biology and SC201 Oceanography and will replace these two courses. SC190 Introduction to Marine Science will build up students' knowledge and equip them with advanced field and lab research techniques. Other recommendations from alumni were integrated into the course contents of the new course SC190 and are identified in the proposal Form NC.

Alumni who participated in the review were mostly those who chose to enter the workforce after they received their Associate degree and a few who were either pursuing bachelor degree at four-year colleges and universities or attempted. One of their recommendations was to include EN114 Advanced Composition as one of the required courses. Those who transferred to four-year colleges and universities expressed disappointment when EN112 Freshmen Composition was not accepted as college-level credits so they had to endure English placement tests again or challenge ESL requirements. At the present, EN112 Freshmen Composition is a recommended course for the ES program. With the deletion of one science core course, the ES program proposes to change EN114 Advanced Composition from recommend to a required program course. The goal is to build up English writing skills to allow for a smooth matriculation from PCC to accredited four year colleges and universities so students can complete their bachelor's degree on a timely manner and continue on to masters and/or doctorate degree. At the same time, minimum requirements for entry-level positions in Palau are requiring strong English writing abilities.

- c. Evaluate the success of the completed actions. Did the completed actions lead to improvement of student learning?

- Proposed modifications to the program contents are received CPC approval. Actions to be evaluated during the next report cycle for ES program review.
 - d. What modifications do you plan to make to the program to improve student learning?
 - Delete SC170 and SC201
 - Proposed new course that integrates major oceanography and marine biology contents from the two courses that were deleted
 - EN114 changed to a required course, instead of a recommended course
 - Change pre-requisite of SC249 to EN112
 - e. Update major changes/accomplishments since the last review.
 - On fall 2020. laboratory contact hours were reduced from two hours and fifty minutes (2hrs 50min) to one hour and thirty minutes (1hr and 30mins) as recommended by the Academic Affairs Division
 - Ten (10) students (ES/IT/STEM) have participated academic off-island trips funded by the IOA-LSAMP and NSF-ATE Grant. Another DEG –NIFA grant has also funds the program objectives.
- Summary of Program Major Strengths
 - ES program at PCC was established by RPPL # _____
 - Two fulltime faculty have been with the program for over 10 years
 - Accrued 32 ES program alumni with 56.7% currently employed by local government, semi-government, and non-government agencies.
 - Program alumni can successfully matriculate to four year colleges and universities. As of summer 2022, there are five (5) of the ES program alumni had received a master of science degree.
 - Ten (10) students (ES/IT/STEM) have participated academic off-island trips funded by the IOA-LSAMP and NSF-ATE Grant. Another DEG –NIFA grant has also funds the program objectives.
 - Strong partnerships with agencies in the community including Palau International Coral Reef Center, Coral Reef Research Foundation, Palau Conservation Society, Belau National Museum, Palau Environmental Quality Protection Board, just to name a few. These community partners have been actively participating in program reviews in the past, making recommendations, hosting ES program interns, and hiring program graduates.
- Recommendations for Improvements
 - a. Do the student assessment data and/or any other college plan indicate overall program needs that may require support from the institution? Define these observed needs supported by assessment data and/or any other college plan.
- Summary of Action Plans – Refer to 6.0 Action Plan
- Summary of Resource Request (if any) – Refer to 7.0 Resource Request
 - a. All resource requests should be tied to at least one of the following: ILO, PLO, CLO, or other college plans
 - Faculty hire at least one more fulltime science faculty – satisfies PLO 1-3. Refer to Appendix C: ES Program Map showing alignment of CLOs – PLOs – ILOs
 - Professional development for faculty – satisfies PLO 1 & 2. Refer to Appendix C: ES Program Map showing alignment of CLOs – PLOs – ILOs
 - Lab facility repairs and improvements – satisfies PLO 1 & 2 and several CLOs. Refer to Appendix C: ES Program Map showing alignment of CLOs – PLOs – ILOs
 - Equipment – satisfies PLO 1 & 2 and several CLOs. Refer to Appendix C: ES Program Map showing alignment of CLOs - PLOs - ILOs
 - b. What will be the anticipated outcome if resource request is granted?

- Faculty – another fulltime faculty will reduce work load for the 2 fulltime faculty so they can actively recruit seniors from the local high schools; another fulltime faculty will allow the college to offer the science courses when there is a need so students in ES and STEM programs will not be part-time students which is a factor why graduation dates are delayed
 - Professional development for faculty – expand knowledge and skills in the use of new scientific data collection tools and technology that can be transferred to the students in the program
 - Lab facility repairs and improvements – provide a conducive learning environment and ensure the safety of students and faculty
 - Equipment – strengthen CLOs for SC109, SC110, SC209, SC160, SC161
- c. Describe the resource request in detail – refer to 7.0 Resource Request

*Note: Other college plans may include the 15-Year Institutional Master Plan, the 5 Year Technology Plan, or other plans such as an approved academic department plan or committee plan.

Appendix A: Program Review Assessment Data

1.0 Program Data

Figure 1. Number of Students Enrolled, Pass/Credit, Fail/No Credit, Audit and Withdraw

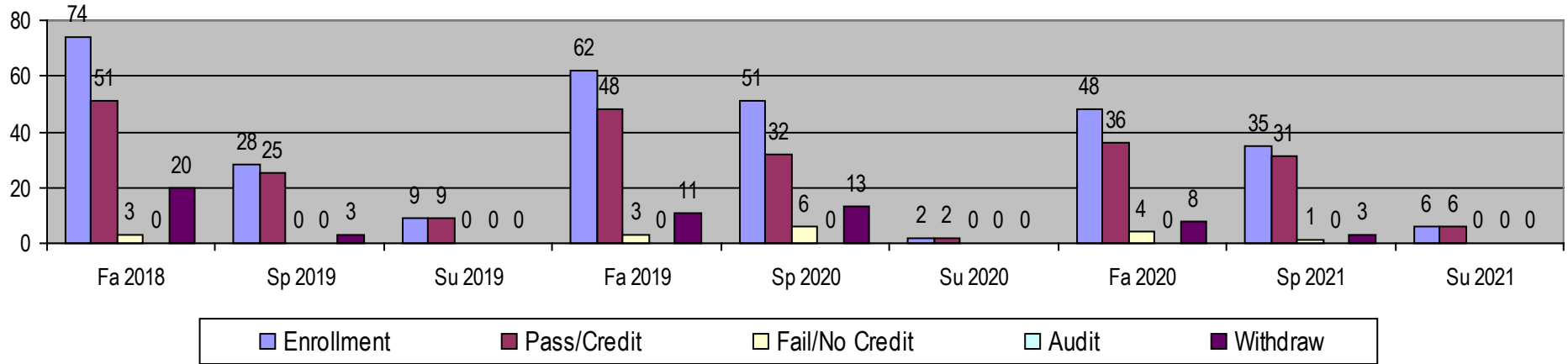


Figure 2. Number of Graduates

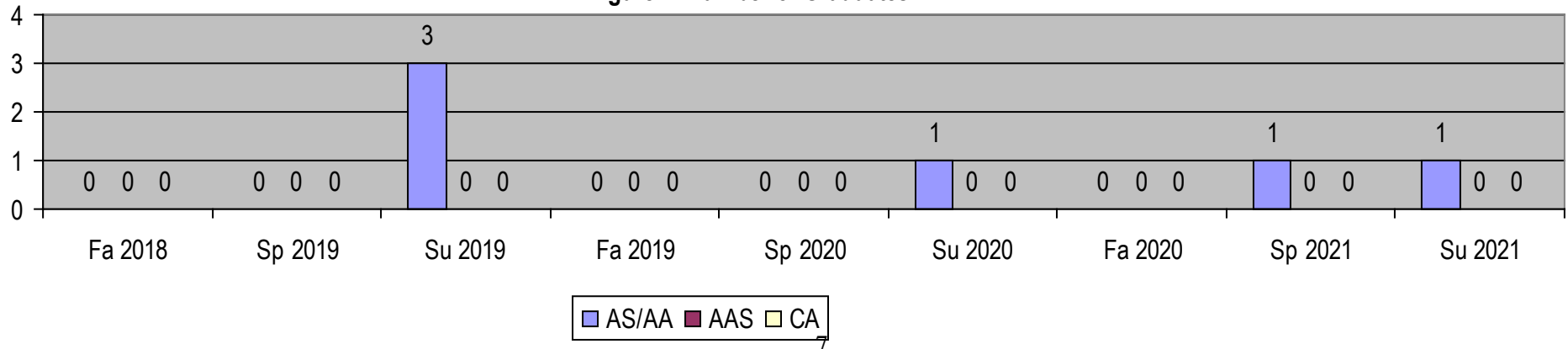


Figure 3. Number of Classes Based on Student Enrollment

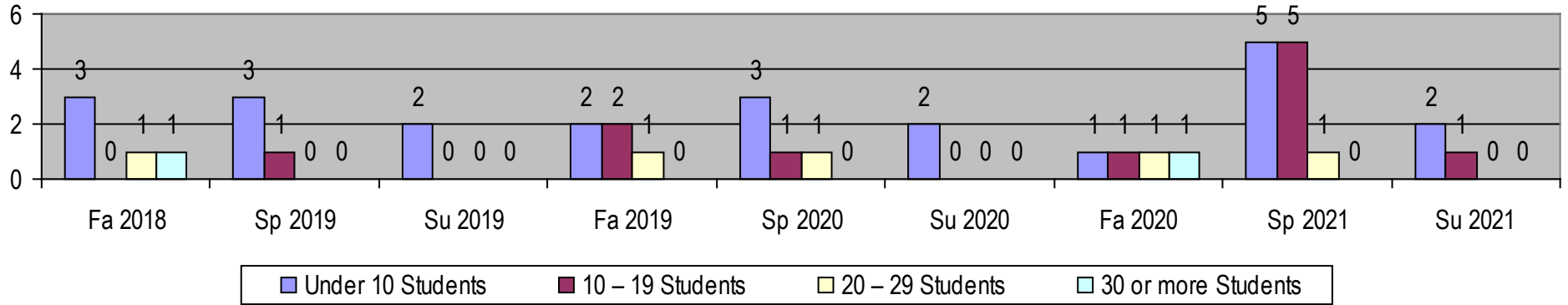


Figure 4. Class Offering

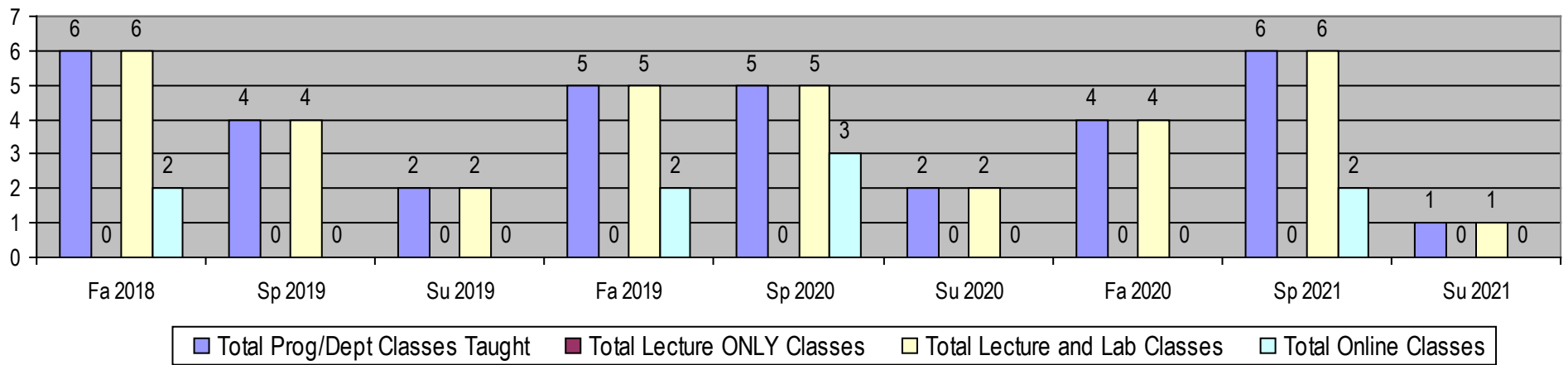
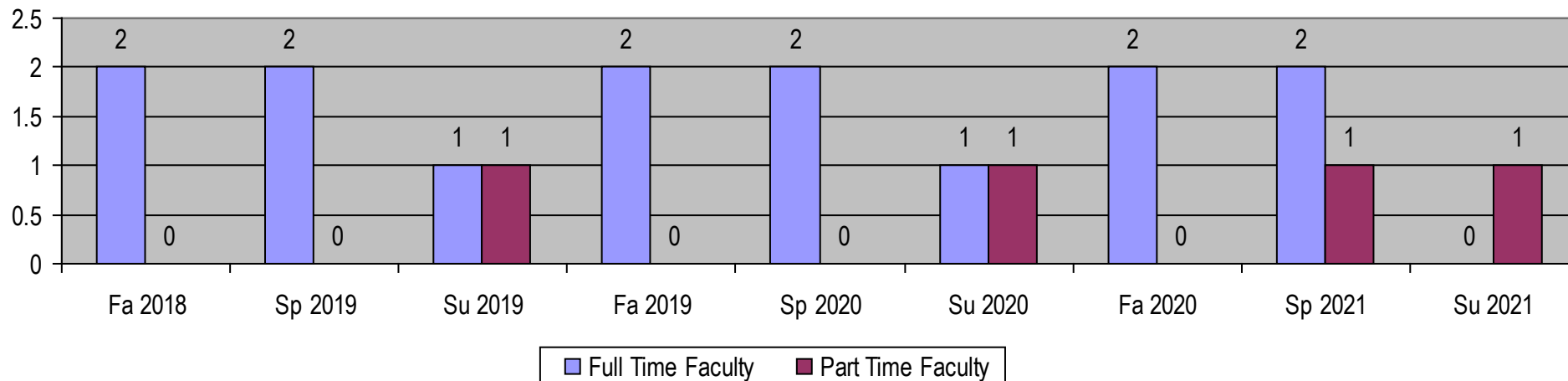


Figure 5. Faculty Head Count



NOTE: Full Time Faculty refers to full time faculty in the program/department. A Part Time Faculty includes adjuncts as well as Full Time Faculty that are teaching courses not within their program/department. These Full Time Faculty are assisting other programs outside of their own, therefore, are considered Part Time Faculty.

Table 1. Faculty to Class Size Ratio (program headcount).

Ratio	Fall 2018	Spring 2019	Summer 2019	Fall 2019	Spring 2020	Summer 2020	Fall 2020	Spring 2021	Summer 2021
Full Time Faculty (F : S)	02:113	02:28	01:3	02:62	02:51	01:1	02:48	02:51	00:0
Part Time Faculty (F : S)	00:0	00:0	01:3	00:0	00:00	01:1	00:00	01:02	01:6

2.0 Student Learning and Curriculum

How many program courses are there? (refer to catalog)	%of courses with Identified CLOs	% of course outlines updated	% of courses whose Textbooks are updated (outline reflects change)	% of PLOs aligned with ILOs
14	100	100	100	100

3.0 Course Assessment Data

SAMPLE

Semester Assessed	Course Assessed	CLO - PLO Alignment	Results of Assessments
Fall 2012	ED 110	CLO 4 – PLO 1 CLO 2,3,5 – PLO 2 CLO 1,4 – PLO 4 CLO 4 – PLO 5	70% of students performed at proficiency level for all CLOs except CLO 4; therefore, more time is needed to be spent in discussion of ethics of teaching.

Year 1: School Year 2018-2019

Semester Assessed	Course Assessed	CLO - PLO Alignment	Results of Assessments
FALL 2018	SC109	Refer to Appendix C	CLO 1: 76.9% of students performed at the proficiency level CLO 2: 42.3% of students performed at the proficiency level CLO 3: 92.31% of students performed at the proficiency level CL 4: 42.37% of students performed at the proficiency level CLO 5: 69.23% of students performed at the proficiency level CLO 6:42.31 % of students performed at the proficiency level
FALL 2018	SC119	Refer to Appendix C	CLO 1: 47% of students performed at proficiency level CLO 2: 4.35% of students performed at proficiency level CLO 3: 60.87 % of students performed at proficiency level CLO 4: 52.17% of students performed at proficiency level
FALL 2018	SC 120	Refer to Appendix	100% of students performed at proficiency level for all CLOs
FALL 2018	SC161	Refer to Appendix C	CLO 1:100% of students performed at proficiency level CLO 2: 100% of students performed at proficiency level CLO 3: 75% of students performed at proficiency level
FALL 2018	SC239	Refer to Appendix C	CLO 1: 71.43 of students performed at proficiency level CLO 2: 100% of students performed at proficiency level CLO 3: 100% of students performed at proficiency level
SPRING 2019	SC110	Refer to Appendix C	CLO 1:66.67% of students performed at proficiency level CLO 2:83.33 % of students performed at proficiency level CLO 3:50% % of students performed at proficiency level CLO 4:33.33% of students performed at proficiency level CLO 5:83.33 % of students performed at proficiency level CLO 6:33.33% % of students performed at proficiency level
SPRING 2019	SC160	Refer to Appendix C	CLO 1:50% of students performed at proficiency level CLO 2: 25% of students performed at proficiency level CLO 3: 12.50% of students performed at proficiency level
SPRING 2019	SC 190		CLO 1:75% of students performed at proficiency level CLO 2: 75% of students performed at proficiency level CLO 3: 100% of students performed at proficiency level CLO 4: 100% of students performed at proficiency level CLO 5: 0.00% of students performed at proficiency:
SPRING 2019	SC249	Refer to Appendix C	CLO 1:100% of students performed at proficiency level: CLO 2: 85.71% of students performed at proficiency level: CLO 3: 100% of students performed at proficiency level:

Year 2: School Year 2019-2020

Semester Assessed	Course Assessed	CLO - PLO Alignment	Results of Assessments
FALL 2019	SC109	Refer to Appendix C	CLO 1: 60% of students performed at the proficiency level CLO 2: 40% of students performed at the proficiency level CLO 3: 75% of students performed at the proficiency level CL 4: 80% of students performed at the proficiency level CLO 5: 15% of students performed at the proficiency level CLO 6: 55% of students performed at the proficiency level
FALL 2019	SC119	Refer to Appendix C	CLO 1: 41.67% of students performed at proficiency level CLO 2: 33.33% of students performed at proficiency level CLO 3: 66.67 % of students performed at proficiency level CLO 4: 33.33% of students performed at proficiency level
FALL 2019	SC 120	Refer to Appendix C	100% of students performed at proficiency level for all CLOs
FALL 2019	SC161	Refer to Appendix C	CLO 1:80% of students performed at proficiency level CLO 2: 80% of students performed at proficiency level CLO 3: 100% of students performed at proficiency level
FALL 2019	SC239	Refer to Appendix C	CLO 1: 77.78% of students performed at proficiency level CLO 2: 100% of students performed at proficiency level CLO 3: 100% of students performed at proficiency level
SPRING 2020	SC110	Refer to Appendix C	CLO 1:78.57% of students performed at proficiency level CLO 2:50.0 % of students performed at proficiency level CLO 3:78.57% % of students performed at proficiency level CLO 4:100% of students performed at proficiency level CLO 5:71.43 % of students performed at proficiency level CLO 6:100% % of students performed at proficiency level
SPRING 2020	SC160	Refer to Appendix C	CLO 1:100% of students performed at proficiency level CLO 2: 100% of students performed at proficiency level CLO 3: 0.00% of students performed at proficiency level
SPRING 2020	SC249	Refer to Appendix C	Percentage of students that performed at proficiency level per CLO: #1 = 54% ; #2 = 70% ; #3 = 89.66% ; #4 = 96.30%
SPRING 2020	SC190	Refer to Appendix C	CLO 1:100% of students performed at proficiency level CLO 2: 100% of students performed at proficiency level CLO 3: 0.00% of students performed at proficiency level CLO 4: 100% of students performed at proficiency level CLO 5: 0.00% of students performed at proficiency
SPRING 2020	SC249	Refer to Appendix C	CLO 1:100% of students performed at proficiency level: CLO 2: 100.00% of students performed at proficiency level: CLO 3: 100% of students performed at proficiency level:

Year 3: School Year 2020-2021

Semester Assessed	Course Assessed	CLO - PLO Alignment	Results of Assessments
FALL 2020	SC109	Refer to Appendix C	CLO 1: 72% of students performed at the proficiency level CLO 2: 96% of students performed at the proficiency level CLO 3: 84% of students performed at the proficiency level CL 4: 72% of students performed at the proficiency level CLO 5: 64% of students performed at the proficiency level CLO 6:76 % of students performed at the proficiency level
FALL 2020	SC119	Refer to Appendix C	CLO 1: 77.78% of students performed at proficiency level CLO 2: 33.33% of students performed at proficiency level

			CLO 3: 66.67% of students performed at proficiency level CLO 4: 33.33% of students performed at proficiency level
FALL 2020	SC161	Refer to Appendix C	CLO 1:100% of students performed at proficiency level CLO 2: 100% of students performed at proficiency level CLO 3: 0.00% of students performed at proficiency level
SPRING 2021	SC110	Refer to Appendix C	CLO 1:40% of students performed at proficiency level CLO 2:66.7 % of students performed at proficiency level CLO 3:46.7% % of students performed at proficiency level CLO 4:100% of students performed at proficiency level CLO 5:60 % of students performed at proficiency level CLO 6:100% % of students performed at proficiency level
SPRING 2021	SC160	Refer to Appendix C	CLO 1:83.33% of students performed at proficiency level CLO 2: 83.33% of students performed at proficiency level CLO 3:33.33% of students performed at proficiency level
SPRING 2021	SC190	Refer to Appendix C	CLO 1:100% of students performed at proficiency level CLO 2: 100% of students performed at proficiency level CLO 3: 0.00% of students performed at proficiency level CLO 4: 100% of students performed at proficiency level CLO 5: 100% of students performed at proficiency level
SPRING 2021	SC249	Refer to Appendix C	CLO 1:100% of students performed at proficiency level: CLO 2: 100.00% of students performed at proficiency level: CLO 3: 100% of students performed at proficiency level

4.0 Program Learning Outcomes (PLOs) Assessment

SAMPLE

List PLOs	Proficiency Levels	Results of Assessments
ED PLO #1	ED110- CLO#4-75% ED120- CLO#1 -77% ED151- CLO#1,2,3- 88% ED200- CLO#1,2 -84% ED204- CLO#1 – 92%	83% of the students reached the proficiency level for ED PLO #1. No action is needed.
ED PLO #2		

List PLOs	Proficiency Level	Results of Assessments shown are the average percentages of students that reached proficiency level per CLO per Course
EMS PLO 1: Students will apply scientific methods and technical laboratory skills.	SC109 CLO 4-6 SC110 CLO 1 - 6 SC119 CLO 1 - 3 SC120 CLO 1 SC160 CLO 1-3 SC161 CLO 1-3 SC190 CLO 1-4 SC239 CLO 1, 2 SC249 CLO 1, 2 SC270 CLO1-5	Refer to the 3.0 Course Assessment Data
EMS PLO 2: Students will apply field techniques	SC109 CLO 2, 3, 5 SC110 CLO 4, 6 SC119 CLO 1-3 SC120 CLO 1 SC160 CLO1-3	Refer to the 3.0 Course Assessment Data

	SC161 CLO 1 - 3 SC190 CLO 1,2, 4 SC239 CLO 2, 3 SC249 CLO 1, 4 SC270 CLO 1,3,4	
EMS PLO 3: Students will conduct individual and team research.	SC109 CLO 1 SC110 CLO 4, 6 SC119 CLO 4, SC120 CLO 1 SC160 CLO 1 - 3 SC161 CLO 1-3 SC190 CLO 1,3,5 SC239 CLO 1-3 SC249 CLO 3, 4 SC270 CLO 1-5	Refer to the 3.0 Course Assessment Data

5.0 Evaluation of Previous Program Review Action Plans

Indicate the status of the previous program review action plans

Action Plan Activity/Objectives	Status Complete/Ongoing/Incomplete	Remarks
Program modifications approved by CPC	Completed in December 2019	Deletion SC 275 and modified SC 270 Combine SC 170 + SC 201 into SC 190 Adding MA 111 and EN 114
IOA LSAMP Grant Objectives	Ongoing	Ongoing for 4 year successfully of 5years Grant. The Science department will work to reapply next week to funds program activities.
Evaluate status of NSF-ATE Grant objectives and budget for the last year of the grant	Ongoing	Ongoing for year 3 of 3 year grant. The Science program will work to reapply next year to funds program activities.

6.0 Action Plans

Based on this program review results, describe the program action plan for the next three (3) academic years. Include necessary resources.

Action Plan Activity/Objectives	How will this action plan improve student learning outcomes? (CLO, PLO, ILO)	Needed Resources (if any)	Timeline
Increase proficient level in all courses	Increase passing rate and retention		Spring 2023
Increase Laboratory and Field works	Improve student performance and increase passing rate in the course		Fall 2022
Strengthen the relationship with	To maximize student involvement in tutoring and other services to		Fall 2022

Student Learning Resources	improve academic performance.		
Provide equipment assistance for learning	Assist student by providing rental laptops to be used on campus only		Fall 2021
Instructors and ES majors actively recruit at high schools	Increase program enrollment through various means of platform: Face to Face session with potential college students and social platform	<ul style="list-style-type: none"> • Transportation for recruiting team to the different high schools • Laptop • LCD projector • ES Program brochures • Camera or video for documenting event 	Fall 2015
Fund-sourcing in collaboration with Dr. Richmond from UH-Manoa in Hawaii and PICRC	External funds to support student internships, faculty development, and curriculum improvements		every summer semester
Effectiveness of OER textbook and hybrid courses	Does OER textbook and hybrid allow flexibility for student for better performance	none	Spring2023

7.0 Resource Requests

Type of Resource	Description	Estimated Amount Requested	Justification
Personnel	1 Fulltime science instructor	\$18,000 - \$22,000 depending on qualifications	Since last ES program review, a new science degree program called STEM has been established increasing the need to offer more science courses. In addition, working with adjuncts has been difficult especially with the added course assessments required from them at the end of the semester. Many adjuncts are not too cooperative with the additional paperwork and thus the incomplete course assessments.
Facilities	Lab Repairs-list is long as it includes those that were listed in the 2009-2012 ES program review.		<p>Electrical Wirings SL B</p> <ul style="list-style-type: none"> • Science Lab B light bulbs flicker when it rains, causing bulbs to burn out. • Cover the open electric socket so wires are not exposed <p>Ceilings SL B</p> <ul style="list-style-type: none"> • Ceiling with a gaping hole needs to be covered (Area Est. = 4ft.2) • Water damaged ceiling around light bulbs and adjacent to wall need to be replaced. (Area Est. 28

			<p>ft.2)</p> <p>SL A</p> <ul style="list-style-type: none"> Water damaged ceiling above AC needs to be replaced (Area Est. 10 ft.2). <p>Walls</p> <p>SL B</p> <p>Inside walls adjacent to carpentry shop paint is peeling off due to roof leaks ...needs paint job.</p> <p>SL A</p> <ul style="list-style-type: none"> Inside wall corners need to be sealed to keep rats, kittens, and baby monitor lizards outside. Hole on the outside wall needs to be sealed to keep pests outside. <p>Countertops & Cabinets</p> <p>SL A</p> <ul style="list-style-type: none"> Countertop under AC is water damaged and needs repair. Cabinets under AC and next to the sink in the back of the room are termite infested and must be replaced. <p>Door</p> <p>SL B</p> <ul style="list-style-type: none"> Exit door to carpentry shop needs to be replaced. Bottom of the door damaged by water is now rat entrance. <p>Air Condition Unit</p> <p>SL B</p> <ul style="list-style-type: none"> AC cleaning overdue. <p>Lab Furniture</p> <ul style="list-style-type: none"> Additional 12 lab stools so two labs can be used at the same time at full capacity when needed <p>Lab Safety</p> <ul style="list-style-type: none"> 3 fire extinguishers (SL A, SL B, and Storage). Emergency shower in SL B needs curtain rod and accessible on/off lever. Lever is on the shower head that is over 6 ft high and unreachable. Landline in the lab in case of emergency. There are evening labs and science lectures that are scheduled in the lab. A telephone is needed in case of emergencies. There are times where there is no PNCC wireless signal inside the labs and we have to come outside to search for signals.
Equipment	Countertop Autoclave	\$8,000 - \$10,000 depending on make and model	This is a must to keep instruments sterile for microbiology labs and also used to make media used to culture microbial samples, such as water quality control tests for microbiology and chemistry courses.
Supplies			

Software			
Training	Professional development	Funded by NSF-ATE Grant	Science instructors need professional development and trainings in new and improved tools and technology used in lab and field data collection and make sure the research techniques required in the ES courses are compatible with accepted methods and techniques used by partner agencies and institutions. Science faculty plan to attend regional science conferences to learn about new discoveries, findings, and research results relevant to Pacific island environments.
Other			
Total			

Appendix B: Provide Program Course Outlines (CLOs)

ENVIRONMENTAL/MARINE SCIENCE (ES)

This program provides technical training for students who choose to work after graduating from PCC; provides the option for employees in this field to improve their skills, and provides a solid background for students interested in pursuing a higher degree at a four-year institution.

As of the writing of this review, the course assessments are being updated:

SC 109, SC 110, SC 119, SC 120, SC 160, SC 161, SC 190, SC 239, SC 249

After completing all the program requirements, a student is able to perform the following (Program Learning Outcome):

1. Students will apply scientific methods and technical laboratory skills.
2. Students will apply field techniques.
3. Students will conduct individual and team research.

Appendix C: Provide program mapping that shows alignment of CLOs – PLOs – ILOs

ENVIRONMENTAL/MARINE SCIENCE PROGRAM MAP

COURSES	PLO 1 Students will apply scientific methods and technical laboratory skills.	PLO 2 Students will apply field techniques.	PLO 3 Students will conduct individual and team research.	<i>Institutional Learning Outcomes (ILOs)</i>
SC109	CLO 4-6	CLO 2, 3, 5	CLO 1	ILOs 1-3
SC110	CLO 1 - 6	CLO 4, 6	CLO 4, 6	ILOs 1-3
SC119	CLO 1 - 3	CLO 1-3	CLO 4, 5	ILOs 1-3
SC120	CLO 1	CLO 1	CLO 1	ILOs 1-3
SC160	CLO 1-3	CLO 1-3	CLO 1 - 3	ILOs 1 – 3
SC161	CLO 1-3	CLO 1 - 3	CLO 1-3	ILOs 1 – 3
SC190	CLO 1,2,4	CLO 1,3,5	CLO 1,3,5	ILOs 1 – 4, 6
SC239	CLO 1, 2	CLO 2, 3	CLO 1-3	ILOs 1- 4, 6
SC249	CLO 1, 2	CLO 1, 4	CLO 3, 4	ILOs 1, -6
SC270	CLO1-5	CLO 1,3,4	CLO 1-6	ILOs 1 – 6

Appendix D: Provide signature assignment form

- Course assessment FAMED grids attached