CAL MARITIME

ANNUAL PROGRAM REPORT

Academic Program	Sciences and Mathematics
Reporting for Academic Year	2018 - 2019
Department Chair	Cynthia S. Trevisan
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1. SELF-STUDY (about 1 page)

A-B: Five-year Review Planning Goals and Progress

Since our last Program Review (2013), our program achieved the following goals:
The chemistry program replaced its *Chemistry I* class with two specialized chemistry classes: *Introductory Chemistry*, and *General Chemistry*.

A math minor was created, which included the development of the following new classes: Introduction to *Linear Algebra*, *Complex Analysis*, and *Probability and Statistics*, *Introduction to Partial Differential Equations,* and *Cryptography*. Additionally, a *College Algebra and Trigonometry Support Lab* was created to comply with EO 1110

One new class was created in the physics program: *Physics for Future Leaders*. No progress was made towards creating a minor in physics.

Two following classes were created in the marine sciences program: *Marine Biology Laboratory*, *Directed Research, Marine Ecology*, and *Marine Ecology Laboratory, Marine Biology Laboratory, Oceans and Climate, Oceans and Climate Lab*.

A Bachelor of Science degree in Oceanography was officially approved to be launched in the fall of 2020.

Supplemental instruction sessions were established for several classes in chemistry, physics and mathematics. Tenure-track faculty members in all programs (with the exception of computer sciences) have engaged undergraduate students in research projects at an individual level.

C. Program Changes and Needs

Tenure-track faculty changes since our last review follow in all programs:

2018 – Dr. Alejandro Cifuentes-Lorenzen, Assistant Professor, Hired
2018 – Dr. Kaylan Randolph, Assistant Research Scientist, Hired
2018 – Dr. Abigail Higgins, Assistant Professor, Resigned
2017 – Dr. Abigail Higgins, Assistant Professor, Hired
2016 – Dr. Matthew Fairbanks, Assistant Professor, Hired
2015 – Dr. Julie Simons, Assistant Professor, Hired
2015 – Dr. Ryan Smith, Assistant Professor, Resigned
2014 – Dr. Ryan Smith, Assistant Professor, Hired
2014 – Dr. Nelson Coates, Assistant Professor, Hired
2014 – Dr. James Wheeler, Professor, Retired
2013 – Dr. Alex Parker, Assistant Professor, Hired
2013 – Mr. Lloyd Kitazono, Professor, Retired

Changes and needs in the marine science program:
During the 2018-2019 academic year the Department of Sciences and Mathematics successfully hired Dr. Alejandro Cifuentes-Lorenzen as an Assistant Professor of Oceanography and Dr. Kaylan Randolph as an Assistant Research Scientist at the Golden Bear Research Center. A Bachelor of Science degree in Oceanography was officially approved. Program Learning Outcomes and Student Learning Outcomes will begin to be assessed once the program is launched. Two new courses (mentioned in the previous section) were created and all courses were renumbered. The new designations will be implemented in the fall of 2020. A new oceanography laboratory opened in the spring of 2019. This laboratory became a dedicated space for faculty research, instruction, and undergraduate research projects. As our Oceanography major grows, we will need to hire additional faculty members.

Changes and needs in the chemistry and physics programs:
Our oceanography major will require that a second semester of general chemistry (CHE210) and a course in organic and bio-chemistry be created and offered. We will also need to create and offer an algebra-based second semester of physics (Electricity and Magnetism) and physics lab. This will require lab space and equipment.

Changes and needs in the mathematics program:
A minor in mathematics was created (see previous section). Three Provost Curriculum Redesign grants were awarded to faculty members teaching mathematics in our Department. One of the grants was used to design a recitation/lab model class as a co-requisite to our entry-level math course, College Algebra and Trigonometry. This approach was taken to help under-prepared incoming students and to comply with Executive Order 1110 (EO 1110). EO 1110 requires campuses to eliminate remedial mathematics and English courses that do not offer college credits to students. Another grant produced worksheets that incorporate active learning techniques in class activities for Calculus I. The third grant was used to establish the curricula for a cross-disciplinary project that links activities between an Elementary Statistics course and a Critical Thinking course.

During the 2018-2019 academic year the Department of Sciences and Mathematics, complying with EO 1110, implemented a College Algebra and Trigonometry Support Lab (MTH 99L) to support students placed in Categories III and IV by the Multiple Measures for Placement criteria used in CSU admissions. This support lab was required of students in Categories III and IV enrolling in College Algebra and Trigonometry (MTH 100), but open to all students. Our Department also conducted a successful search for an Assistant Professor of Mathematics Education. Dr. Ariel Setniker, who accepted to join Cal

Maritime in the fall of 2019, will spearhead our efforts in redesigning our developmental mathematics program.

Changes and needs in the computer science program:
As our student population increases and these programs develop new offerings, faculty hires and lab equipment will be needed.

Need for all programs: student graders to help alleviate the high grading workload of professors and benefit students by providing earlier feedback on performance.

2. SUMMARY OF ASSESSMENT (about 1 page)

A. Program Student Learning Outcomes

Sciences – Student Learning Outcomes

1. Understand scientific principles and their relationship to the physical universe. (IWSLO-B,D)
2. Use theories, principles and models, in conjunction with the scientific method to analyze problems in science. (IWSLO-B, C, D)
3. Acquire and utilize mathematical and computational techniques to both analyze and comprehend problems in science. (IWSLO-B, C, D, G)
4. Effectively communicate scientific information in a way that is meaningful and convincing (IWSLO-A,F)

Mathematics – Student Learning Outcomes

1. Apply mathematical techniques and reasoning to problems in math. (IWSLO-C)
2. Create mathematical expressions from a word or application problem and analyze those expressions applying mathematical principles. (IWSLO-B, C)
3. Demonstrate an understanding of the theoretical and practical aspects of solving problems in math. (IWSLO-B, D)

B. Program Student Learning Outcome(s) Assessed

During the 2018-2019 academic year, formal assessment of all department SLOs were conducted with the exception of Sciences SLO-4.

C. Summary of Assessment Process

Department SLOs are assessed at the course level. Instructors gather assessment artifacts and apply an assessment rubric developed by the instructors and the department. Each instructor summarizes assessment results in a formal assessment report that is collected by the department chair. Assessment reports and data can be found in the department Dropbox assessment folder.

D. Summary of Assessment Results

Our department has recently updated the department and course student learning outcomes with the following considerations:

1. Clearly defining student learning outcomes for each course and showing alignment of course SLOs with department SLOs (which in turn align with university SLOs).

2. Developing clear rubrics for each course SLO to be used by all instructors.
3. Adopting common syllabi that include course descriptions and SLOs that are consistent across all instructors who teach each course and also are consistent with the course description in the catalog.
4. Organizing assessment reports in a common database. Currently, these reports are housed in a shared Drop-Box folder.

Having implemented these improvements in our assessment process, we are now seeking to improve the process by which assessment data and reports are collected. During the 2018-2019 academic year assessment was reported for the following courses:

Fall 2018: MTH100, MTH107, MTH211, MTH212, PHY 100, PHY200, & COM100
Spring 2019: CHE105, DL125, MTH001, MTH107, MTH215, NAU240, & NAU310

Department and course assessment data is summarized in the following table with percentages of students meeting the benchmark (with the exception of data from Dr. Fairbanks who reports average score out of a 6-point rubric):

COURSE	Instructor	term	SSLO-1	SSLO-2	SSLO-3	MSLO-1	MSLO-2	MSLO-3
MTH215	Simons	SP19				71.70%	98%	77%
MTH107	Moradmand	SP19				58.5	58.5	
NAU240	Fairbanks	SP19			3.7+/-1.3			
CHE105	Runyon	SP19			85%			
DL125	Strickland	SP19	96%	96%				
MTH001	Strickland	SP19	43%	43%				
NAU310	Strickland	SP19	94%	100%				
MTH212	Pohlmann	FA18				78%	78%	
MTH100	Moradmand	FA18				52.80%	52.80%	
MTH107	Simons	FA18				43.50%	43.50%	79.40%
MTH211	Simons	FA18				80%	68%	34%
PHY200	Moradmand	FA18			45.2			
PHY100	Fairbanks	FA18			3.8+/-1.8			
COM100	Strickland	FA18	66.70%	66.70%				
MTH100	Strickland	FA18	50%	50%				

Our campus has recently adopted a new learning management system that incorporates robust assessment tools. We anticipate that as instructors become more familiar with this new system and with the assessment tools in particular, the collection of assessment data will become more streamlined. This will require additional training for all faculty in the use of the assessment tools available in the new system.

3. STATISTICAL DATA

Statistical data is meant to enhance and support program development decisions. These statistics will be attached to the Annual Report of the Program Unit. This statistical document will contain the same data as required for the five-year review including student demographics of majors, faculty and academic allocation, and course data.

Program	
A. Students	
1. Undergraduate	NA (no majors offered)
2. Postbaccalaureate	NA (no majors offered)
B. Degrees Awarded	NA (no majors offered)
C. Faculty	
Tenured/Track Headcount	(fall 2018)
1. Full-Time	10
2. Part-Time	0
3a. Total Tenure Track	10
3b. % Tenure Track	62.5
Lecturer Headcount	(fall 2018)
4. Full-Time (lecturers with WTUs $\geq$ 15)	2
5. Part-Time	4
6a. Total Non-Tenure Track	6
6b. % Non-Tenure Track	37.5
7. Grand Total All Faculty	16
Instructional FTE Faculty (FTEF)	(fall 2018)
8. Tenured/Track FTEF	8.38
9. Lecturer FTEF	4.23
10. Total Instructional FTEF	12.61
Lecturer Teaching	(fall 2018)
11a. FTES Taught by Tenure/Track	118.00
11b. % of FTES Taught by Tenure/Track	60
12a. FTES Taught by Lecturer	79.47
12b. % of FTES Taught by Lecturer	30
13. Total FTES taught	197.47
14. Total SCU taught	2,962
D. Student Faculty Ratios	
1. Tenured/Track	14.1
2. Lecturer	18.5
3. SFR By Level (All Faculty)	
4. Lower Division	15.8
5. Upper Division	9.6
E. Section Size	
1. Number of Sections Offered	59
2. Average Section Size	18.0
3. Average Section Size for LD	18.2
4. Average Section Size for UD	12.0
6. LD Section taught by Tenured/Track	35
7. UD Section taught by Tenured/Track	2
8. GD Section taught by Tenured/Track	0
9. LD Section taught by Lecturer	22
10. UD Section taught by Lecturer	0