

Program Review & Planning (PRP)

PART 1: BASIC PROGRAM INFORMATION

Program Review is a self-study of your discipline. It is about documenting the plans you have for improving student success in your program and sharing that information with the college community. Through the review of and reflection on key program elements, program review and planning identifies program strengths as well as strategies necessary to improve the academic discipline, program, or service to support student success. With that in mind, please answer the following questions:

Discipline Name:	Earth Science
Department Name:	Earth, Space and Environmental Sciences (ESES)
Division Name:	Math and the Natural and Health Sciences (MNHS)

Please list all participants in this Program Review:

Name	Position
Lisa Yon	Professor, ESES Dept.
Patty Deen	Professor, ESES Dept.

Number of Full Time faculty	2	Number of Part Time Faculty	1
------------------------------------	---	------------------------------------	---

Please list the Classified positions (and their FTE) that support this discipline:

Brenda Morris, ADA, 20%
 Tony Kopec, Instructional Support Assistant IV, 10%

What additional hourly staff support this discipline and/or department:

none

Discipline mission statement ([click here for information on how to create a mission statement](#)):

The Earth Science Program at Palomar College functions as a multiple mission program. Through our ES 100 and ES 115 courses, we promote earth science literacy and fulfill the general education physical science requirement for degree or transfer. Additionally, the ES 100 course is an approved course for transfer into the CSU San Marcos Liberal Studies Elementary Subject Matter (ESM) option. Producing well-educated science students who pursue teaching careers will ultimately improve K-12 science instruction. As of Fall 2016, ES 100 lecture and lab courses may also be used to satisfy course requirements for the A.A. in

Anthropology for Transfer (A.A.-T).

The Earth Science curriculum is designed to provide the fundamental knowledge and skills to students interested in increasing their understanding of the complex interactions among Earth's geosphere, hydrosphere, atmosphere, and biosphere. The curriculum also includes the connection of humans to Earth for natural resources and the impact of Earth processes (such as earthquakes, volcanic activity, and other natural hazards) on the distribution and development of human populations. The influence of human activities on Earth's surface processes is also addressed. The overall mission of the program is to develop an Earth-science-literate community that is aware of current and accurate scientific understanding of our planet. Such a population is critical to the promotion of Earth stewardship, sound public policy, and expanded international cooperation.

List any new degrees and certificates offered within this discipline since your last comprehensive review:

none

Discipline Level Data: <https://sharepoint2.palomar.edu/sites/IRPA/SitePages/PRP%20Summary%20Source.aspx>

PART 2: PROGRAM REFLECTION

1. Program Analysis:

Reflect upon and provide an analysis of your summary data.

Enrollment in Earth Science courses remains strong. For Fall semesters 2011, and 2012, three sections of ES courses were offered, producing an average Fill Rate of 104%. Responding to the demand for ES, in Fall 2013, the offerings were increased by one section, and the Fill Rate remained high at 98%. For Fall 2014, we reached our peak offerings of five sections, and Fill Rate remained strong at 92%, well above the all College average of 82%. In Fall 2015 and Fall 2016, due to scheduling concerns (full-time faculty on Load Bank Leave), course offerings were lowered to four sections and the Fill Rate averaged 94%.

Most sections of ES 100 continue to be taught by full-time faculty Patty Deen and Dr. Lisa Yon, who also both teach Oceanography and/or Geology. ES 115 has typically been taught by full-time Geography faculty member Doug Key, who retired June 2015. Total FTEF over the past six years has varied between 1.0 to 0.6 due to sabbaticals and leaves. WSCH/FTEF over the past six years has averaged 641, one of the highest values in the ESES Department (averaging 558) and significantly above the College average of 467.

Retention rates for ES courses average 93%, which is very similar to other programs within the ESES Department as well as the college-wide average. Success rates for ES courses over the past five years have averaged 66%, which is similar to other programs within the ESES Department. This value is slightly higher than the MNHS Division average of 61% and slightly lower than the college-wide average of 71% for the same time period. Lower success rates in the sciences in general may reflect lack of adequate preparation for some students such as the language and critical thinking skills required for college-level science classes. Current limited access to data does not allow us to evaluate English Language Learners (ELL) students as we have done in the past, but prior data has suggested that ELL students have lower success rates. Students considering enrollment in Earth Science courses should be advised by their counselors that college-level English and Math skills provide the best preparation for success in a college-level science course.

2. Standards:

ACCJC requires that colleges establish institutional and program level standards in the area of course success rates. These standards represent the lowest success rate (% A, B, C, or Credit) deemed acceptable by the College. In other words, if you were to notice a drop below the rate, you would seek further information to examine why the drop occurred and strategies to address the rate.

Discipline Level Course Success Rate:

- A. The College's institutional standard for course success rate is 70%.
- B. Review your discipline's course success rates over the past five years.
- C. Identify the minimum acceptable course success rate for your discipline. When setting this rate, consider the level of curriculum (e.g., basic skills, AA, Transfer) and other factors that influence success

Standard for Discipline Course Success Rate:

70%

Why?

We consider 70% to be an appropriate standard for discipline course success rate, which is consistent with SLO rates.

3. Program Update:**Describe your proudest moments or achievements related to student success and outcomes.**

Based upon student feedback over several semesters, we continue to utilize the McGraw-Hill LearnSmart online activities in conjunction with traditional classroom learning activities including demonstrations and student-driven hands-on explorations. Together, the joint use of these activities has yielded a higher student success rate compared to years prior to the implementation of the online activities.

4. Program Improvement:**What areas or activities are you working on this year to improve your program? Please respond to new data as well as feedback from last year's program review.**

Many of the students who enroll in Earth Science courses appear to have deficiencies in basic college-level English and Math skills. Rather than bar such students from enrolling in the Earth Science courses, the implementation of the McGraw-Hill LearnSmart program as part of the required activities for ES100 has provided a way to offer students reinforcement of course concepts tailored to their individual skill and knowledge levels. For each student, the LearnSmart program tracks which topics the student has mastered and which require further instruction and practice. Students are thus able to earn credit for successful completion of the reading and associated exercises. We believe that this program has increased retention rate for the course.

5. Unanticipated Factors:**Have there been any unanticipated factors that have affected the progress of your previous plan?**

The implementation of the compressed schedule has had an unanticipated impact on our ability to offer section of ES 100 during prime times and to find an appropriate time to offer the ES 100 Lab. Students, however, continue to express an interest in completing the ES 100 lab so we will explore the option of offering a lecture/lab combination at the South Center when it opens.

6. SLOACs:**Describe your course and program SLO activities this past year. How have you used the results of your assessments to improve your courses and programs? Refer to the SLO/PRP report – <https://outcomes.palomar.edu:8443/tracdat/>**

A recent assessment of the SLO related to Plate Tectonics revealed an interesting trend. A total of 65 students completed the comprehensive assessment, which included multiple choice/matching questions, completion of diagrams, and short answer essay questions. The overall student success rate was above 70% however a distinct trend was noticed. Several activities both in class and online were given to students to complete as part of the discussion of the concept of Plate Tectonics and prior to the SLO assessment. Eighty-two percent of the students who fully and successfully completed these activities scored above 70% on the assessment. In fact, the average of these assessment scores was 77%. In contrast, students who failed to participate in and complete these in class and online activities not only failed to pass the SLO assessment, but did so dramatically earning typically only 62% on the assessment. Obviously students who participate in the learning activities do

much better on assessments, which is certainly not surprising. The question becomes, however, how does one enforce the full participation of all students in the completion of these activities? Students make the choice of whether or not to fully participate in a course and thus their grade will be a reflection of their level of participation.

PART 3: PROGRAM GOALS

1. Progress on Previous Year's Goals: Please list discipline goals from the previous year's reviews and provide an update by placing an "X" the appropriate status box .

Goal	Completed	Ongoing	No longer a goal
Replacement of retired full-time faculty member.		X	
Expansion of Earth Science offerings to include ES 100 Lab.		X	
Expansion of Earth Science offering to SEC in Rancho Bernardo.		X	

2. New Discipline Goals: Please list all discipline goals for this three-year planning cycle (including those continued from previous planning cycle):

Goal #1	
Program or discipline goal	With the retirement of full-time faculty member Doug Key in June 2015, ES 115 has only been offered twice over the past seven semesters. Although Professor Key's primary teaching responsibilities were within the Geography discipline, he was the lead instructor for ES 115, which was dually listed as Geog 115. The minimum qualifications for both the Earth Science and Geography disciplines are very similar and thus it is hoped that the replacement hired to fill the Geography position vacated by Professor Key will also be able to continue to teach ES 115, thus ensuring the consistency and quality of instruction within the ES discipline. Filling this position becomes time-sensitive when one considers that Patty Deen expects to retire in December 2018 and Lisa Yon is also considering retirement in the next 4 years. The rationale form for a Geography faculty member was submitted for the third time in March 2017.
Strategies for implementation	The College needs to move forward on plans to hire a replacement Geography faculty member who meets the minimum qualifications for both the Earth Science and Geography disciplines.
Timeline for implementation	Hiring of a retirement replacement should occur as part of the next hiring cycle. At this time, the request appears to be ranked fourth, however there are concerns that hiring will not occur at all or will be limited to only those positions ranked first and second.
Outcome(s) expected (qualitative/quantitative)	Ensuring the consistency and quality of instruction within the ES (as well as Geography) discipline. We are currently in the middle of our third year without a full-time faculty member to teach specific courses.
Goal #2	
Program or discipline goal	The ES 100 Lab course has been developed, has passed review for C-ID, and has been approved by the Curriculum Committee. One section of the course was offered to students for the first time during the Spring 2016 semester, but unfortunately it failed to fill and was cancelled. Although

ANNUAL PROGRAM REVIEW AND PLANNING

	there is firm student interest, and the course is now part of the Anthropology A.A.-T program, finding a time to offer the course to maximize student enrollment is an issue. The compressed schedule has made this task more difficult as lab times either overlap with primetime lecture classes or are offered later in the day when many students depart campus for jobs.
Strategies for implementation	The best option for enrollment success for the ES 100 lab course is to offer the course in conjunction with the lecture, such as a twilight lecture followed by an evening lab (lecture twice per week, lab once per week) or perhaps two evening offerings (Tuesday lecture, Thursday lab).
Timeline for implementation	We are considering implementation to coincide with the opening of the SEC.
Outcome(s) expected (qualitative/quantitative)	With the offering of the ES 100 lab course, students pursuing majors in Liberal Studies (Elementary Subject Matter credential) and those students in the Anthropology A.A.-T degree program will be able to satisfy their course requirements.
Goal #3	
Program or discipline goal	The South Education Center (SEC) is currently scheduled to open during Summer 2018. Our initial goal to offer both ES 100 lecture and lab classes at SEC remains a possibility. However, changes to the classroom/storeroom plans now raise the question of sufficient resources at SEC to offer the lab component. Thus, plans for offering ES courses at the SEC are dependent upon the goals and support of the College at the time that the Center opens.
Strategies for implementation	In order to provide quality instruction for our lab classes, sufficient resources need to be made available. This means not only physical supplies, but also sufficient space to store supplies on site at the SEC as well as sufficient space in which to prep lab activities prior to class time.
Timeline for implementation	Supplies and storage would be expected to be available with the first offering of the classes, which could be as early as Summer or Fall 2018.
Outcome(s) expected (qualitative/quantitative)	Provide an opportunity for students to satisfy their degree requirements for Liberal Students (Elementary Subject Matter) and Anthropology A.A.-T degree.

PART 4: FEEDBACK AND FOLLOW-UP

This section is for confirming completion and providing feedback.

Confirmation of Completion by Department Chair

Department Chair	Wing Cheung
Date	11/4/2017

***Please email your Dean to inform them that the PRP has been completed and is ready for their review**

Reviewed by Dean

Reviewer(s)	Margie Fritch
--------------------	---------------

ANNUAL PROGRAM REVIEW AND PLANNING

Date	March 13, 2018
1. Strengths and successes of the discipline as evidenced by the data and analysis:	
SLOs are well documented and goals are appropriate.	
2. Areas of Concern, if any:	
3. Recommendations for improvement:	

***Please email your VP to inform them that the PRP has been completed and is ready for their review**

Reviewed by Vice President	
Reviewer(s)	Jack S. Kahn, Ph.D.
Date	1/18/18
1. Strengths and successes of the discipline as evidenced by the data and analysis:	
<ol style="list-style-type: none"> 1. Great mission statement- really well done 2. Program analysis is also really well done and described- excellent 3. McGraw-Hill idea is fantastic- thank you for this 4. The SLO section is one of the best I've seen for the annual- just needed a clarification of what the SLO was that you examined (its alluded to but unclear to a non-expert). Well done though. 5. Goals are also excellent 6. Thoughtful, well written, and data is integrated well- thank you for the thoughtful review 	
2. Areas of Concern, if any:	
3. Recommendations for improvement:	