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OVERVIEW OF PROGRAM REVIEW AND PLANNING FOR INSTRUCTIONAL PROGRAMS

Program Review and Planning is about evaluating and assessing programs and documenting plans for improving student success rates. Through review of and reflection on key program elements, Program Review and Planning identifies program strengths and strategies necessary to improve the academic discipline, program, and/or services to support student success.

The College also uses Program Review and Planning as the conduit to request resources (human, technology, facilities and funding) to further help improve and support programs.

BASIC PROGRAM INFORMATION

Academic Year
2021-2022

Are you completing a comprehensive or annual PRP?
Comprehensive

Division Name
Mathematics, Science and Engineering

Department Name
Earth, Space, and Environmental Sciences

Department Chair Name
Sean Figg

Discipline Name
Oceanography (OCN)

Department Chair email
SFigg@Palomar.edu

Please list the names and positions of everyone who helped to complete this document.
Dr. Lisa Yon

Website address for your discipline
https://www.palomar.edu/pages/oceanography/

Discipline Mission statement
The completion of oceanography coursework at Palomar College fulfills the general education physical science requirements for degree completion or transfer. The oceanography discipline offers students the opportunity to study the dynamic processes and interconnections that affect Earth's marine systems including the study of geological, chemical, physical, and biological oceanography. Further, the oceanography discipline seeks to help students develop an understanding of the ocean's influence on humans as well as their impact on the ocean environment. Students who successfully complete the coursework will be able to make informed and responsible decisions regarding the oceans and its resources.

Describe how your mission statement aligns with and contributes to the College's Vision and Mission.
The mission of the Oceanography discipline is aligned with Palomar College's Mission Statement through its focus on providing a high-quality science education for a diverse student population. Our coursework thus addresses the Core Values of access, diversity/equity/inclusion, and academic excellence as part of the Palomar Mission Statement.

Students successfully completing the Oceanography coursework satisfy requirements for transfer in General Education or Earth-Science-related majors. The field-oriented Oceanography lab provides students with an opportunity to practice basic science process skills resulting in an increased depth of knowledge and appreciation of topics covered in Oceanography lecture. In addition, students are encourage to become informed and involved as citizen scientists related to local and global oceanographic issues.

(click here for information on how to create a mission statement)

Does your discipline have at least one degree or certificate associated with it?
No

Are any of your programs TOP coded as vocational (CTE/CE)?
No

BASIC PROGRAM NFORMATION: FACULTY AND STAFFING RESOURCES

In this section, you will identify how many faculty and staff support your discipline's programs. This information is considered when you request permanent staff and faculty hires. It is also useful as you evaluate your program and the human resources and talent you have to support our students.

To help you answer questions in this section, you will need the two links below. An arrow will appear in the spreadsheet pointing to the data you will enter.

1) **Permanent Faculty and Staff Count**

 2) **FTEF LINK**

How many permanent or full-time faculty support your discipline (program)?
1

For this past fall semester, what was your Full-time FTEF assigned to teach classes?
0.4

For this past fall semester, what was your Part-time FTEF assigned to teach classes?
2.20

List the classified and other permanent staff positions that support this discipline.
Abigail Corona, Academic Department Assistant, 6.67%
Tony Kopec, Instructional Support Assistant IV, 10%

List additional hourly staff that support this discipline and/or department
None

PROGRAM INFORMATION

In this section, you are asked to consider and evaluate your programs, including their program learning outcomes, the annual number of completions, goals for completions, and enrollment and efficiency trends.

PROGRAM LEARNING OUTCOMES

Begin this section by reviewing the Program Review reports for programs and courses in Nuventive Improve (TracDat). All active course and program learning outcomes should be systematically assessed over a 3-year cycle. First, look at program learning outcomes.

- **Program** = Leads to a degree or certificate

- **Discipline** = A group of courses within a discipline

*Programs will be able to complete program completion and outcome questions.

How do they align with employer and transfer expectations?
Oceanography is a two-course discipline: Oceanography 100 (lecture) and Oceanography 100L (lab). As a discipline, Oceanography lecture/lab course may be used to satisfy Associate Degree General Education requirements Area B (Natural Sciences), as well as CSU-GE Area B (Scientific Inquiry and Quantitative Reasoning) transfer requirements or IGETC Area 5 (Physical Science) transfer requirements.

Falling into these categories, the learning outcomes align with transfer expectations related to the belief that students should be provided with a "well-rounded education" regardless if their chosen course of study. This is obviously part of the Mission Statement for Palomar College where we are expected to prepare students to engage locally and globally. Students require a diverse skill set in order to lead productive lives, be knowledgeable citizens, and to be able to communicate ideas as a useful member of a global society.

Depending on the degree or transfer goals of our students, there are three different GE pathways to choose from:

- Associate Degree GE Requirements

- CSU GE Requirements

- IGETC Requirements

Palomar College has identified a set of General Education/Institutional Learning Outcomes (GE/ILOs), which represent the overall set of abilities and qualities a student graduating from Palomar should possess. Click here for a link to Palomar's GE/ILOs.

Next, review your course outcomes as they relate to Palomar's GE/ILOs.

How do the courses in your discipline support GE/ILOs? In your response, please specify which GE/ILO(s) your discipline supports. You should refer to the GE/ILOs your program outcomes are mapped to in Nuventive.

Oceanography courses at Palomar College (Ocean 100 Lecture, Ocean 100 Lab) support the designated General Education/Institutional Learning Outcomes in the following ways:

1) Communication: Students enrolled in oceanography courses at Palomar College are required to accurately communicate their knowledge of oceanographic content and thoughts about oceanographic topics in order to successfully pass the course. This may entail analysis of class topics, class discussions, class debates, completion of assignments, completion of assignments, and the writing one of more content papers.

2) Computation: Oceanography is a scientific discipline, so successful students must learn how to analyze scientific data that is involved with computation. This helps successful students achieve a certain level of familiarity with analysis of computational data, including understanding and analyzing graphs and charts. This is particularly true in the Ocean 100 Lab course.

3) Creative, Critical, and Analytical Thinking: As a science course, students are required to use critical thinking skills to successfully complete the course requirements. This involves analyzing scientific data using creative, critical, and analytical thinking. One example is the critical analysis of how the scientific method is used to solve oceanographic problems.

4) Community, Multicultural/Global Consciousness and Responsibility: Successful students are required to develop an understanding of the ocean's influence on humans as well as humans' impact on the ocean environment. In essence, students should be aware that the oceans and humans are inextricably interconnected. In addition, students who successfully complete the program will be able to make informed and responsible decisions regarding the oceans and its resources.

5) Foundation Knowledge of Discipline: Successful students are required to demonstrate an understanding of oceanographic concepts, principles, and processes, which entails a foundational knowledge of the discipline. In essence, successful students must understand how the ocean behaves and the geological, chemical, physical, and biological factors that influence in those behaviors.

6) Integrative Learning (learning communities, service learning, engagement through the arts): Successful students are required to understand the interdisciplinary nature of oceanography in order to succeed in the courses. Not only does this include the various branches of science that are related to the study of oceanography, but also the social and political sciences. Students are also offered opportunities to engage in service learning activities, such as beach clean-ups, public lectures, and volunteering at public information gateways to oceanographic data (such as the Birch Aquarium at Scripps).

Summarize the major findings from your course outcomes assessments that are related to the GE/ILOsducation/Institutional Learning Outcomes that your discipline supports. You should refer to the GE/ILOs your course outcomes are mapped to in Nuventive.

OCN 100 currently assesses three SLOs:
1- Describe characteristic processes and landforms associated with tectonic plate boundaries.
This SLO focuses on the following GE/Institutional Outcomes: Critical A (Critical Thinking) and Critical B (Information Literacy). This SLO also covers the GE Foundational Knowledge of Discipline-General Education Outcome.

2- Compare and contrast the oceanic and atmospheric characteristics between El Niño and La Niña.
This SLO focuses on the following GE/Institutional Outcomes: Critical A (Critical Thinking), Critical B (Information Literacy), and Community C (Civic knowledge and engagement). This SLO also covers the GE Foundational Knowledge of Discipline-General Education Outcome.

3- Describe the seasonal pattern of phytoplankton productivity for tropical, mid-latitude, and polar oceans.
This SLO focuses on the following GE/Institutional Outcomes: Critical A (Critical Thinking) and Critical B (Information Literacy). This SLO also covers the GE Foundational Knowledge of Discipline-General Education Outcome.

Overall student success rate for comprehensive assessments is above 70%. Comprehensive assessments include multiple choice/matching questions, completion of diagrams, and short answer essay questions which are embedded in the exams for each section. There is an interesting trend to note, however. Prior to exams/SLO assessment, several activities both in-class and online are given to students to complete as part of the discussion of the topic and to enhance their understanding of the topic. Students who fully and successfully complete these activities score well above 70% on the assessment. In contrast, students who fail to participate in and complete these in-class and online activities also fail to pass the SLO 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.

OCN 100 Lab currently assesses three SLOs:
1- Interpret bathymetry and navigation information from a NOAA chart.
This SLO focuses on the following GE/Institutional Outcomes: Critical A (Critical Thinking) and Critical B (Information Literacy). This SLO also covers the GE Foundational Knowledge of Discipline-General Education Outcome.

2- Read a published tide chart to interpret current tidal condition; explain how Earth-Moon-Sun relationships influence the observed pattern.
This SLO focuses on the following GE/Institutional Outcomes: Critical A (Critical Thinking), Critical B (Information Literacy), and Community C (Civic knowledge and engagement). This SLO also covers the GE Foundational Knowledge of Discipline-General Education Outcome.

3- Human Impacts in Coastal Environments: Students analyze data and assess the impact of humans on the coastal environments with focus on coastal productivity and coastal pollution.
This SLO focuses on the following GE/Institutional Outcomes: Critical A (Critical Thinking), Critical B (Information Literacy), and Community C (Civic knowledge and engagement). This SLO also covers the GE Foundational Knowledge of Discipline-General Education Outcome.

Overall student success rate for comprehensive assessments is above 70%. Comprehensive assessments include review and analysis of data related to the concepts with students providing written summaries of those analyses. Students may also compose short essays or "position statements" reflecting on topics related to the interaction of humans with the coastal environment.
Students fully engaged in the lab activities typically do well on assessments as the nature of the lab class allows them to be highly interactive while exploring the assigned topics. As a result, students appear to be more invested in exploration of the topics and able to make more connections with concepts initially presented in the lecture sections of the Oceanography course.

As a related observation, those students who are concurrently enrolled in Oceanography lecture and lab, and fully participating in coursework in these classes, score well above 70% on the assessments in both courses. This should not be surprising as these students are exploring the key concepts in more detail.

A concern surrounding this observation, however, is that the number of lab section offerings has been steadily reduced by the College over the past several years. For many years a total of six sections of OCN Lab were offered each semester, taught by three full-time faculty. Unfortunately, with the retirement of two full-time faculty (Dec. 2018 & May 2020), those offerings have dwindled to currently only three offerings of lab sections as the full-time positions have yet to be re-staffed. Thus, although the lab course enhances a student's overall understanding and success in Oceanography coursework, not all students wishing to enroll in the OCN 100 Lab can be accommodated. This is further hampered by the fact that the online registration process has yet to provide waitlists for students wishing to add the lab course should a spot open up on the roster.

ENROLLMENT AND EFFICIENCY TRENDS

Your courses and offerings represent the path students take to complete their goals. Palomar has a very diverse set of programs and offerings and students have many paths they can take to earn a degree, certificate, or transfer.

In addition to student success and completion, enrollment trends, resources (FTEF), and efficiency metrics like FTES/FTEF are factors reviewed by the college when considering needs for staffing and program support. Evaluating these metrics also helps the College when developing class schedules to meet the needs of students.

Palomar College uses the WSCH/FTEF ratio as one indicator of overall efficiency in addition to the overall fill-rate for courses.

Although the college efficiency goal is 525 WSCH/FTEF and 85% fill-rate (minimal), there are many factors that affect efficiency (i.e. seat count / facilities / accreditation restrictions).

In this section, you will examine your enrollments over time and resources (FTEF) utilized to support or generate those enrollments.

This information can be found by looking at enrollment efficiencies.

Link to Program: Enrollment Trends

Have your enrollment trends increased, decreased, or stayed the same for your discipline over the past five years? (check box)
Stayed the same

Have your efficiency trends increased, decreased, or stayed the same for your discipline over the past five years? (Check box)
Stayed the same

Were these trends expected? Please explain.
For the Oceanography discipline, the enrollment and efficiency trends have remained about the same for the OCN 100 lecture: Over the past five years there has been an average of 10 lecture sections offered per semester, averaging a total of 460 students per semester, with a fill rate of 95%, and an average WSCH/FTEF of 717 (well above the College Efficiency Goal of 525).

For the OCN 100 lab, the trends are a bit more complicated as over the time period observed several changes occurred including an increase in the enrollment cap, new offerings at the Rancho Bernardo Education Center, and instituting the non-traditional "compressed schedule" which affected the time of day lab sections were offered. In general, over the past five years, an average of 4 lab sections were offered per semester, averaging a total of 101 students per semester, with a fill rate of 91%, and an average WSCH/FTEF of 425. The low efficiency rate for the OCN lab course may be reflective of the smaller class size mandated by the hands-on nature of the laboratory and field experiences.

Although the efficiency value for OCN 100L is below the College Efficiency goal of 525, it is important to note that the value for OCNL is comparable to other introductory lab courses within the Earth, Space and Environmental Sciences Department: Astronomy 105L (428), Geology 100L (422), and Geography 100L (377). Fill rates for OCN Lab (91%), on the other hand, are higher compared to these other lab courses within the same department: Astronomy 105L (84%), Geology 100L (85%), Geography Lab (76%).

Program Information Summary

In this section you are asked to evaluate your programs by considering their program learning outcome assessments, the annual number of completions, goals for completions, enrollment and efficiency trends and any other internal or external factors that had an impact on your program.

What factors have contributed to the success of your program(s)? Describe how they have contributed.
Oceanography is a dual course (OCN 100 lecture and lab) discipline (not a program) thus there are no program learning outcome assessments.
That aside, the OCN 100 lecture and lab courses are a popular course for students to complete their General Education requirements.

The long-term success of the OCN discipline can be attributed to the long-term commitment of three full-time faculty members in the development of a rigorous, but engaging, course format. This is especially true in the context of the Oceanography Lab course which for twenty-five years has produced an in-house lab manual focusing on topics of current and local interest and utilizing local coastal locations for hands-on field trips.

What factors have presented challenges for your program(s)? Describe the impact of these challenges.
The OCN 100 lecture and lab courses regularly fill; lecture courses usually generate a wait list and students are accommodated when possible. Unfortunately, the College has yet to figure out how to consistently develop a wait list for the OCN lab course and this does have a negative impact on enrollment and therefore potential retention and success. It is unclear why wait lists for any of the Earth, Space and Environmental Sciences lab courses are not being generated. One semester may have wait lists and yet the next may not. Until this inconsistency is resolved, potential students are being turned away from the registration process.

Probably the biggest challenge to the OCN discipline at this point is the loss of full-time faculty to retirements: Patricia Deen in
Dec. 2018 and Al Trujillo in May 2020. Although there is currently an excellent pool of adjunct faculty, they do teach at other colleges and thus we complete for their availability. In the past two years, however, we have "lost" two exceptional part-time instructors who have been hired as full-time instructors at other San Diego colleges.

This situation presents challenges in continuity of the teaching of the lecture and lab courses, course development/updates, and logistics/safety on field trips. Maintaining the quality of the OCN 100 lecture and lab courses will continue to be a challenge for a single full-time faculty member until a new full-time faculty member is hired to help off-set the loss created by the two retirements.
Hiring a full-time faculty member will also help to bring the College in compliance with AB1725.

COURSE INFORMATION

In this section, you will review how students perform in the courses you offer as part of your program. The Chancellor's Office Vision for Success stresses the importance of reducing equity gaps through faster improvements of underrepresented groups.

Data are provided to help you examine differences in course success rates (C or better) across student demographic categories (e.g., gender) and course type (e.g., face-to-face, online).

After you complete your review of course success data, you are asked about the assessment of student learning outcomes at the course level, progress you have made in these assessments, and changes you have implemented as a result/

COURSE SUCCESS AND RETENTION

ACCJC also requires that colleges establish institutional and program level standards and stretch goals for course success rates.

Program-set standards for course success rates represent the lowest success rate deemed acceptable by your discipline. 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. The College's institution-set standard for course success rates is 70%

Program-set stretch goals for course success rates represent the success rates you aspire your students to achieve.

Link to Course Information

The data includes overall success (% C or better) and retention rates (% No Ws) . The data tables include course rates by gender, age, ethnicity, special population, location, and modality (You can access the Student Equity Plan on the SSEC website https://www2.palomar.edu/pages/ssec/)

What is your program's standard for Discipline COURSE Success Rate?
68.0%

Why did you choose this standard?
Students perceive that science courses are more difficult than other classes. From what our students tell us, the most common reasons are that science courses are "difficult" and they have a lot of vocabulary. Many students who are "math phobic" enroll in Oceanography for their General Education science requirements to avoid the obvious math found in physics and chemistry; they are shocked to learn that "math is the universal language of science." This generates an apprehension that in turn affects student performance, the age-old "I'm not very good at science" excuse produces students who are self-limiting. Thus, by slightly "lowering the bar" we can generate student confidence and success.

That being said, success rates for the Oceanography discipline increased from 65% (Fall 2014) and 67% (Fall 2015) to a fairly stable average of 70% from Fall 2016 to Fall 2019. This exceeds our Discipline Course Success Rate of 68% and is compliant with the College's institutional standard of 70%.
Data from Fall 2020 is complicated by the transition to fully online for all sections due to COVID, however even this value sits at 69%.

Have your overall course success rates increased, decreased, or stayed the same over the last 5 years?
Stayed the same

Was this expected? Please explain.
Overall success rates over the last 5 years have fluctuated slightly, showing only a slight variation around the 70% value. The Oceanography discipline is composed of 2 primary courses; a lecture and a lab. The lecture is typically offered across 10 or 11 sections and averages 460 students per semester. The lab course, however, has been reduced over the years from 6 offerings to 4 and currently only 3 sections. This is significant becasue students who can enroll in the lab course essentially receive supplemental instruction in the the course materials. Success rates in the Oceanography lab course averages 81% (approximately100 students per semester) while the Oceanography lecture course averages success rates of 68%. The data provided by the College does not allow one to see which students are dually enrolled in both lecture and lab within the same semester, but it is suspected that those students able to enroll in both lecture and lab have an overall higher success rate. With reduced section offerings of Oceanography lab, there are fewer spots for students to take advantage of the lecture/lab dual enrollment. Also, because of this, some students are forced to take the lab at a later semester thus they miss out of the potential support that that lab activities provide for the material covered within the lecture portion of the discipline.

What is your stretch goal for course success rates?
71.0%

How did you decide upon the goal?
According to Palomar's Accreditation Report (March 2021), the campus-wide stretch goal for the College is 71%. The Oceanography discipline (Oceanography lecture and lab combined) has achieved this goal in the past and continues to hover in the range of 70% thus the stretch goal of 71% is believed to be achievable.

Have your overall course retention rates increased, decreased, or stayed the same over the last 5 years?
Increased

Was this expected? Please explain.
Overall course retention rates (Oceanography lecture and lab) have shown a steady increase in retention over the past 5 years from 89% to 94%. As a General Education science course option, the Oceanography discipline is popular with students and the lecture-lab combination, although separate courses, are tightly coordinated to support student learning. Although the majority of Oceanography lectures are taught by adjuncts, they are dedicated to the success of the students. Weekly topics covered in lectures are synchronized to support student learning in the lab course. Students more likely to remain in a course where they feel they are supported, thus the increase in retention rates is not surprising.

Are there differences in success or retention rates in the following groups? (choose all that apply)

Age   Ethnicity

Age: Why do you think age differences exist? What do you need to help close the gap?
As students must report their actual birthday, data related to age can be considered to be reliable. For the OCN lecture, all age groups, (19 and under, 20-24, 25-49) the retention rates are similar and average 91%. However, when success rates are viewed, there is a distinct difference in that older students (25-49) have 70% success rates while younger students typically average 65% success. This may be because an older student is more committed to their success or perhaps has simply become more successful in structuring their time. The data for OCN lecture is similar to the College-wide data where the older students average 72% success and younger students average 68% (with no distinct difference between the under 19 versus the 20-24 age groups).

For the OCN Lab, there is a distinct difference in the retention rates between the younger students (less than 19 and 20-24) when compared to the older students (25-49). The younger student retention averages 92% while older student retention is 82%. Perhaps the time commitment for the lab (a three hour block) is an issue for older students with other work or family obligations. That being said, the success rates for the three age groups averages 80% thus those students who stick with the lab course do well.

Ethnicity: Why do you think ethnicity differences exist? What do you need to help close the gap?
For ethnicity, the dominant groups are self-identified as Hispanic and White. As these are the largest data groups, they are the most reliable for establishing any trends.
Enrollment in the OCN lecture over five years averages 53% Hispanic and 47% White. Over that time frame, there has been a very slight increase in Hispanic students with a corresponding slight decrease in White students. Retention rates for the two groups over time are very similar, averaging 91%.
There is, however, a distinct difference in the success rates for the two groups with Hispanic students averaging 60% and White students averaging 76%. This trend has been noted previously in PRP reports. The trend is also noted in the College-wide data as well where retention in the two groups is similar (91%) but success rates for Hispanic students average 65% while White students average a success rate of 75%.

In the OCN lab course, again retention rates for Hispanic and White students are very similar, averaging 91%. Success rates, however, do show a distinct difference as they did in the lecture portion of the course. Success rates for White students averages 87% while Hispanic students average 75%...a gap similar in size to that seen in the lecture portion of the course.

I do not have the resources to explore the reasons for this difference in success rate for ethnic groups. However, routine observations in the classroom suggest that Hispanic students might be struggling with basic reading comprehension (as English might not be the student's primary language) as well as the use of technology to complete assignments. Observations also indicate a lack of basic skills in Elementary School math operations (addition, subtraction, multiplication, division) as well as Middle School math concepts (decimals, fractions, and percent as well as the concept of positive and negative numbers). These observations suggest that there might be a lack of preparation for students from the local school districts that feed into Palomar College. The question then becomes how to address this lack of basic skills so that students may be successful in a college-level introductory science course.

Are there differences in success/retention between on-campus and online courses?
Yes

Please share any best practice methods you use for online courses.
All courses whether face-to-face or online should have a clear structure presented to the student so that they understand their role in the course and the expectations for their participation.
For online courses, there is the added layer of being proficient in using technology to access information, to communicate, and to submit assignments as well as complete exams. Providing students with resources for online behavior (netiquette) is important as well as providing links for technical support should the need arise.
Best practices for online courses include a clear structure to the web page for the course such as a "module" format where students can find all the necessary materials for the current topic all in one place. Providing a variety of resources (print vs video) allows students to choose methods that suit their learning styles. Especially for asynchronous online courses, prompt feedback is necessary to reinforce the important concepts and to assure students that they are progressing through the material successfully.

COURSE STUDENT LEARNING OUTCOMES (SLOs)

Summarize the major findings of your course level student learning outcomes assessments.
Students are able to successfully pass the course assessments with success rates averaging at or above the minimum assessment pass rate of 70%. This means that for both Ocean 100 Lecture and Ocean 100 Lab, the assessments are being met. After the assessment results have been compiled, the Oceanography 100 Lecture instructors meet to brainstorm best practices, share proven strategies for retention and engagement, and consider discipline-wide changes about pedagogy as a result of this reflection. By sharing the ways in which various instructors teach each SLO content area, there is an effort to ensure quality and consistency of instruction.

Reflecting on the major findings you summarized, what are some questions you still have about student learning in your courses that you have not yet been able to address with your outcomes assessments?
Although average success rates are acceptable, there continues to be a concern for some students who may be struggling with basic reading comprehension and language skills as well as basic math skills. These are the students who perform significantly below the average success rates. Addressing this issue is not really a question that exists at the level of the discipline but rather an issue that needs to be addressed at the institutional level.

What are some improvements in your courses that have been, or can be, pursued based on the key findings from your course learning outcomes assessments?
In order to address some of the deficiencies in language and math skills, there has been the effort to present material in a variety of formats. Ultimately, however, the SLO assessments must be standardized across all of the sections regardless of the manner in which the student was presented with the concepts. Thus until the College addresses basic deficiencies in student preparation for college-level science courses, there will likely be outliers in the learning outcomes assessments.

Excluding courses that haven't been offered in the last three years, confirm that all of your courses have been assessed in the last three years.
Yes

PROGRAM CURRICULUM ALIGNMENT, MAPPING, SCHEDULING, & PLANNING

The Chancellor's Office Vision for Success stresses the importance of decreasing the average number of units accumulated by CCC students earning degrees.

Palomar College's Guided Pathways plan includes clarifying paths for students by sequencing course offerings so that they support scaffolding and timely completion. Our goal is to ensure learning through:

- The mapping and assessment of clear program outcomes that are also aligned to employer and/or transfer institution expectations.

- Engaging and applied learning experiences.

- Effective instructional practices to support students in achieving success.

What is your departmental strategy on how you schedule your courses, including the time of day you offer courses? Do you use 4-week, 8-week, or block scheduling (putting required classes near each other) to organize required classes to meet the needs of disproportionately impacted students? Please explain.
The ESES Department follows the block scheduling format with most offerings of the OCN lecture course occurring in prime time morning time slots. In addition, sections have been offered late afternoon and typically each semester there is an evening course offering. OCN lecture courses have also been offered during the 4-week winter session as well as the 8-week Fast-Track and summer sessions.
The OCN lab course at 3 hours is typically offered in the afternoon time slot such that students can transition easily from the lecture course to the lab course. Each semester an evening lab course is scheduled to compliment the evening lecture course (usually paired as a lecture/lab,Tuesday/Thursday offering).

How do you work with other departments that require your course(s) for program completion?
The Oceanography courses are not required by other departments for program completion. They are stand alone courses that satisfy General Education science requirements.

Does your discipline offer cross-listed courses?
No

Are there curriculum concerns that need to be resolved in your department? What are they?
There are no curriculum concerns related to the Oceanography discipline.

How is the potential need for program/course deactivation addressed by the department?
As this is a two-course (lecture/lab) discipline satisfying General Education science requirements, there should be no need for course deactivation.

Are there areas you would like to expand?
The Oceanography lecture and lab are already set-up to be taught at the Rancho Bernardo campus once we return to face-to-face course meetings post-COVID.

Describe any data and/or information that you have considered as part of the evaluation of your program.
Not applicable; Oceanography is a two course discipline, not a program.
That being said, the courses can be used for the completion of the Associate in Science, General Studies:Science and Mathematics

To answer the next two questions, you will need to review your program maps and program information in the 2021-2022 Catalog.

Is the content in the program mapper accurate?
Yes

Is the content in the catalog accurate?
Yes

Has your department or discipline started having discussions about embedding diversity related issues or content in your curriculum?
Yes

If yes, describe your efforts. If no, what type of training or help do you need to do this work?
As I (Dr. Lisa Yon) am the only full-time faculty for this discipline, I have been researching information on my own to make available to students in general. Many underrepresented groups in the geosciences (including oceanography) are initially science-phobic. Making these students feel more comfortable with the concepts is an important first step in recruitment of diverse talent. Resources I have explored come from the American Geophysical Union, The Oceanography Society, Women in Ocean Science, the Geological Society of America, and the National Association of Geoscience Teachers. The University of California-Berkeley Library also maintains a website called "Diversity, Equity and Inclusion in Earth & Planetary Science" with links to various resources.

CAREER AND LABOR MARKET DATA

The Chancellor's Office Vision for Success stresses the importance of increasing the percent of exiting students who report being employed in their field of study. It is important for us to consider how **_all_** of our programs connect to future careers.

Go to this website https://www.onetonline.org/ and enter your discipline in the bubble on the top right for ideas about potential occupations. Click on an example to see more detail.

What kinds of careers are available for people who complete your programs (and/or transfer)? (Refer to link above) Are there any new or emerging careers? If so, how would the new or emerging careers impact your future planning?
25-1051.00 Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary
19-2021.00 Atmospheric and Space Scientists
19-2042.00 Geoscientists, Except Hydrologists and Geographers
19-4099.00 Life, Physical, and Social Science Technicians, All Other
19-4041.02 Geological Sample Test Technicians

New or emerging careers: One potential area of employment is with aquaria and other public outreach organizations that explain oceanography to the general public.

For San Diego specifically, the region is designated as a "Blue Tech" or Ocean Tech cluster. Blue Tech jobs include technologically advanced activities and methods used to solve water-related issues as well as traditional maritime jobs. There are 46,000 maritime jobs in the San Diego region with 50% of these focused on Blue Tech. The estimated job growth is 12%.Underwater robotics is especially prevalent in San Diego with the Marine Technology Society welcoming students to their monthly meetings.
Students interested in pursuing a Blue Tech career would be encouraged to pursue coursework in computer science and cybersecurity.

What are the associated knowledge, skills, abilities (KSA's) needed for the occupations listed above? (click examples in the link above to get ideas)
In essence, the KSAs needed for employment in any of the above fields are basic oceanographic knowledge (e.g. the geological, chemical, physical, and biological elements that control the oceans), as well as general scientific skills and abilities. Further, an advanced degree (M.Sc. or Ph.D) are required for most jobs involving oceanography.

More specifically, knowledge needed includes:
Education and Training
English Language
Mathematics
Computers and Electronics
Physics
Chemistry
Geology
Biology

Skills needed include:
Speaking
Reading Comprehension
Instructing
Problem Solving Using Scientific Principles
Active Listening

Abilities needed include:
Oral Expression
Speech Clarity
Oral Comprehension
Written Comprehension
Deductive Reasoning

How does your program help students build these KSA's?
By completing courses in oceanography at Palomar College, successful students have a basic background in science and fundamental oceanographic concepts to enable them to continue their education at other 4-year institutions. Many of these KSAs are fundamental items (English Language, Speech Clarity, Reading Comprehension) that a student learns in a variety of classes while obtaining a college degree.

Work Based Learning

Applied and work-based learning (WBL) allows students to apply classroom content in professional settings while gaining real-word experience. WBL exists on a continuum that reflects the progress of experiences from awareness-building to training. Students often cycle back through the continuum many times throughout college and throughout their career. Faculty play a critical role in ensuring these experiences are embedded into curriculum and support learning.

Have you incorporated work based learning (work experience, internships, and/or service learning) into your program?
No

Do you want more information about or need assistance integrating work-based learning into your program?
No

How do you engage with the community to keep them apprised of opportunities in your program?
Through various outreach opportunities, such as Palomar's STEM Conference, Palomar's Active Learning Leaders (ALL) Conference, meetings with local high school counselors, and other off-campus events such as talks at the Birch Aquarium at Scripps.
*Note: All pre-COVID and expected to return once "normal" conditions resume.

Program Goals

In the previous sections, you identified opportunities for improvement. Using these opportunities, develop 3-year SMART goals for your department. Goals should be Specific, Measurable, Attainable, Relevant, Time-Specific. Ensure your goals align with the mission of your department and/or the College's Strategic Plan.

Please list all discipline goals for this three-year planning cycle. Click here for previous PRPs and goal information.

If you require any additional resources beyond your exiting budget, please be sure to request those resources in the next section titled "Resources".

Goals

Goal 1

Brief Description
Hire a new full-time interdisciplinary oceanography/geology instructor

Is this a new or existing goal?	**Goal Status**
Existing	Ongoing

How will you complete this goal?
The search for a new full-time faculty member is currently underway with interviews to occur Spring 2022. If a successful candidate is found, they would expect to begin their position with the Fall 2022 semester.

Outcome(s) expected (qualitative/quantitative)
The hiring of a replacement interdisciplinary oceanography/geology instructor will ensure consistency and quality of instruction within the Oceanography and Geology Programs at Palomar College.

How does this goal align with your department mission statement, the college strategic plan, and /or Guided Pathways?
The Oceanography discipline at Palomar has historically (the past 25 years) offered enough classes to support 3 full-time oceanography instructors. With the retirements of Patty Deen (December 2018) and Al Trujillo (May 2020) the discipline relies on a single full-time faculty member who also teaches in other Earth Science disciplines (Dr. Lisa Yon) and who will be retiring within this academic year.
In addition, we also need to be compliant with state law, which specifies a full time to adjunct instructor ratio of 75/25% for classes taught in our discipline. We have been below that metric for several years.

Expected Goal Completion Date
8/1/2022

RESOURCES

Congratulations! You are nearing completion. In this section, you will consider the resources you need to implement your three-year program review plan and/or address any findings from your assessment of your discipline.

The section is organized into the following four parts:

PART 1: Staffing Needs (Faculty and Additional Staff)

PART 2: Budget Review

PART 3: Technology and Facilities Needs

PART 4: One Time Request for Other Needs (NonTechnology Equipment, Supplies, Operating Expenses, Travel)

PART 1: STAFFING NEEDS

Requests for faculty will follow the prioritization process currently in place in IPC, and the IPC SubCommittee. Requests for new staff positions will be prioritized at the division level and reviewed at Exec.

Are you requesting additional full-time faculty?
No

NOTE: If you are requesting full-time faculty, you must go back to the Labor Market section of the form to complete that section. It is required when requesting additional faculty positions.

Are you requesting new Classified, CAST or AA positions?
No

PART 2: BUDGET REVIEW

Review your Budget/Expenditure reports for fiscal year 2019, 2020, 2021. Consider your three-year PRP plan.

Click on the link below to access directions to the *Available Budget Report* to complete this section.

How to Request the Available Budget Report

Reflecting on your three-year PRP plan, are there any budget considerations you would like your dean/supervisor to be aware of for the upcoming year?
No

NOTE: PARTS 3, 4 and 5 – TECHNOLOGY, FACILITIES AND OTHER NEEDS

1. One-Time Fund Requests. The college is implementing a process for prioritizing and allocating funds for one-time needs/requests tied to Program Review and Planning. Prioritization will take place through participatory governance in planning councils and the Budget Committee. Then, a recommendation will be made to Exec for funding of request utilizing various funding sources.

   For more information about funding sources available, see IELM BLOCK GRANT, LOTTERY, PERKINS AND STRONG WORKFORCE GUIDELINES.

   Consider submitting one-time requests only if you have verified that you cannot fund the request using your general discretionary funds or other funds.

2. Technology and Facilities Review. From now on, ALL requests for technology will go through an institutional review process. If you request technology here, you will see a description of the process below.

PART 3: TECHNOLOGY AND FACILITIES NEEDS

Will you be requesting any technology (hardware/software) this upcoming year?
No

Part 4: Facilities Requests

Do you have resource needs that require physical space or modification to physical space?
No

PART 5: OTHER ONE-TIME NEEDS

For more information about funding sources available, see IELM BLOCK GRANT, LOTTERY, PERKINS AND STRONG WORKFORCE GUIDELINES. Please check with your department chair on the availability for this cycle.

Do you have one-time requests for other items (e.g., Non-Technology Equipment, Supplies, Operating Expenses, Travel) that your budget or other funding sources will NOT cover?
No

I confirm that all full-time faculty in this discipline have reviewed the PRP. The form is complete and ready to be submitted.
Yes

Enter your email address to receive a copy of the PRP to keep for your records.
Lyon@palomar.edu