

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:	Oceanography Program
Department Name:	Earth, Space, and Environmental Sciences
Division Name:	MNHS

Please list all participants in this Program Review:

Name	Position
Al Trujillo	Professor, ESES Department (completed Ocean 100 Lecture info)
Patty Deen	Professor, ESES Department
Lisa Yon, Ph.D.	Professor, ESES Department

Number of Full Time faculty	2.4	Number of Part Time Faculty	4
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Please list the Classified positions (and their FTE) that support this discipline:

Academic Department Assistant (20%)
 Department Technician (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 mission of the Oceanography Program at Palomar College is to fulfill the general education physical science requirement for degree or transfer. The Oceanography Program 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 Program 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 program will be able to make informed and responsible decisions regarding the oceans and its resources.

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.

Oceanography enrollments have remained stable and high with some variation over the past six years of data and compare favorably with campus averages. For most of this analysis, six full years of data were used and included 12 semesters: Fall 2011 to Spring 2017 (most recent data). The variables that are examined in detail in this analysis include: (1) Enrollments, (2) Fill Rate, (3) Total FTEF, (4) WSCH/FTEF, (5) Success Rate, and (6) Retention Rate.

Enrollments

During the past 12 semesters, Oceanography Program enrollments have averaged about 610 students per semester at census, which represents an average of 28% of the total enrollment of the ESES Department. Enrollments have been as low as 522 (Fall 2016) and reached an all-time high of 717 (Spring 2014). The Oceanography Program is one of the largest single-subject programs in the sciences: Each semester, there are on average about 500 students enrolled in Oceanography 100 Lecture and about 110 students enrolled in Oceanography 100 Lab.

Fill Rate

During the past 12 semesters, average fill rate for the Oceanography Program was 92.0% as compared to the college average of 85.8% over the same period. In fact, the fill rate for the Oceanography Program sometimes exceeded 100% (Spring 2012, Fall 2012). The data shows a significant drop-off of Oceanography Program fill rate (80.21%) in Spring 2015, most likely due to the same reasons the college-wide fill rate has decreased (80.45%) and why enrollments for the college as a whole have decreased. Fortunately, those numbers have rebounded nicely since then. The Oceanography Program face-to-face fill rate is 94.9%, and the Distance Education (DE) fill rate is 85.8%. It was noted in last year's PRP that the DE fill rate has been decreasing over time from 94.54% during Fall 2011 to 80.24% in Spring 2016. This was mostly attributed to increasing the class size of Oceanography 100 Online from 32 to 42 students (Spring 2016), which represents a 31% increase in class size. Also, this was caused by offering a total of 15 sections of Oceanography 100 Lecture. However, since that time we have increased our efficiency and reduced the number of offered sections. As a result, the Oceanography fill rate has rebounded nicely (Fall 2016 = 98.1% Fill Rate).

Total FTEF

The Oceanography Program has 3 full-time faculty members, but only one of them (Trujillo) teaches a full load in oceanography. For the past 12 semesters of data, Total FTEF for the program is 3.4 per semester, indicating that the oceanography teaching load is more than what can be taught by 3 full-time instructors. Part-time/Total FTEF % has also varied markedly during the past 12 semesters depending on faculty sabbaticals and various leaves, ranging from a high of 60.0% (Spring 2014, Fall 2015) to a low of 29.4% (Fall 2011, Spring 2017). It is likely that the Part-time/Total FTEF% will remain high as long as full-time instructors teach a substantial proportion of their load in other Earth Science disciplines.

WSCH/FTEF

It is noted that a desirable target for WSCH/FTEF is 550. During the past 12 semesters, the Oceanography Program WSCH/FTEF averaged 567.3, which exceeds the 550 desired amount and is a result of teaching large class sections that mostly fill to capacity. It is also a result of increasing Oceanography 100 Online class size from 32 to 42 students (a 31% increase in class size). It is also noted that during Fall 2016, the Oceanography Program WSCH/FTEF reached an all-time high for WSCH/FTEF of 714.2, which demonstrates the efficiency of the Oceanography Program. This value will continue to

increase if the proposed class size in Oceanography 100 Online is increased from 42 to 60 (a total increase from 32 to 60 students, which represents an 87.5% increase in class size). However, the increase will very likely adversely affect student success and retention rates.

Success Rate

The Oceanography Program success rate has remained relatively stable and moderate with some variation over the past 12 semesters of data, ranging from a low of 63.6% in Spring 2014 to a high of 74.2% in Spring 2017. During the 12 semesters of data, Oceanography Program success rates have averaged 68.2%, which is slightly lower than the average success rate for the college as a whole (71.4%). This is very typical for what students consider difficult science classes. Still, the average success rate of Oceanography 100 Online (67.3%) is higher than the overall college DE success rate of 63.4% and is within one percentage point (no statistical difference) as compared to the success rate of Oceanography 100 face-to-face courses (68.2%). It should be noted that the [LY1] [CW2] increase in Oceanography 100 Online class size from 32 to 42 made it more difficult for an instructor to create a positive learning environment for online students and inhibits student-to-student as well as instructor-to-student interactions.

Retention Rate

The Oceanography Program retention rate has remained stable and high with some variation over the past 12 semesters of data. Oceanography retention rates have varied from a low of 87.5% (Spring 2015) to a high of 95.9% (Spring 2012) and have averaged 91.6%, which matches the college-wide average retention rate (91.6%). We're doing a little better with DE retention rate: Oceanography 100 Online has a retention rate that averaged 87.0% (high of 96.6% in Spring 2012) and exceeds the college DE retention rate of 85.7%. It is also noted that there is a substantial drop-off of Oceanography 100 Online class retention rate (80.3%) in Fall 2014, coinciding with a similar drop-off of the overall college retention rate for DE classes of 83.2% in Fall 2014. The downward trend of online retention rate is ascribed to less demand for online classes, thereby resulting in shorter waitlists and less prepared students registering in online Oceanography 100 Lecture classes. Overall, the college experienced a similar decline in DE retention rates (down from a high of 91.7% in Spring 2012 to 83.2% in Fall 2014). It is anticipated that the retention rate of Oceanography 100 Lecture online classes will continue to decrease as online class sizes have increased from 32 to 42 beginning in Spring 2016. Also, with the increase in online class size, one section of Oceanography 100 Online has been dropped. However, the recent retention rate of Oceanography 100 Online has rebounded nicely in Spring 2017 to 89.2%, which coincides with an upward trend in retention rate over the past 3 years.

Analysis of Oceanography Labs

Over the past six years, the Oceanography lab class has experienced two significant changes in scheduling which have had an impact on Enrollments, Success Rate, and Retention Rate. Data from Fall 2011 through Fall 2014 reflect a very consistent scheduling process with an offering of six sections accommodating 25 students per section. Most sections were offered at the traditional lab time of 1:00 pm with one section offered in the evening. Fill Rates averaged 90% with a Retention Rate of 95% and a Success Rate of 83%. Beginning with the Fall 2015 semester, enrollment capacity was increased to 28 students resulting in a reduction of sections being offered (four sections rather than six). This change made it difficult for students to find a lab to fit their schedule. The dramatic change came in Fall 2016 with the implementation of the "compressed schedule" and the offering of lab classes at non-traditional times. An initial offering of four sections similar to Fall 2015 was unsuccessful and one section was cancelled approximately one week prior to the start of the semester. For many students, a lab offering at a non-traditional time of 11:20am conflicts with primetime lecture classes. Fill Rate did jump to 99% in Fall 2016 as we tried to accommodate students who were dropped from the cancelled section. Retention Rate by the Fall 2016 semester, however, had dropped to 84% and Success Rate plummeted to 71% (compared to previous years where we experienced relatively stable rates of 95% and 83%, respectively). We believe that these trends can be attributed to (1) the larger class size (less efficient groups) as well as (2) students coming into class having already completed up to three hours of lecture classes with essentially no break. Students who are hungry simply will not perform as well.

Numbers for WSCH and Total FTEF for OCN labs vary considerably over the past six years depending on full-time faculty on leave. The WSCH/FTEF over the past 6 years has varied from a high of 470 to a low of 315. Although we have two part-time faculty trained to teach OCN 100 Lab, due to the numerous field trips and the large time commitment for set-up, the goal is for OCN lab to be taught largely by full-time faculty. Patty Deen's retirement in December 2018 is anticipated to have a huge negative impact on the Oceanography Lab component of the Program.

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:

68.0%

Why?

For a variety of reasons, students perceive that science courses are more difficult than other classes. Over the past 12 semesters of data, the Oceanography Program success rate has varied from a high of 74.2% (Spring 2017) to a low of 63.6% (Spring 2014) and averages 68.2%, which is just slightly below the college's institutional standard of 70%.

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

The Oceanography Program remains one of the cornerstones of the Earth, Space, and Environmental Sciences Department. During the past 16 semesters, average student enrollment at census in Oceanography 100 Lecture has been 381 students. During Spring 2014, average student enrollment reached an all-time high of 555 students and an all-time high of 15 sections of Oceanography 100 Lecture (both face-to-face and online). We have increased our efficiency, and as a result, during Fall 2016 the Oceanography Program WSCH/FTEF reached an all-time high of 714.2.

Oceanography students at Palomar continue to provide valuable feedback for revisions of the textbook *Essentials of Oceanography*, which is authored by Trujillo and is the world's best-selling college-level oceanography textbook. In 2017, *Essentials of Oceanography* 12th Edition was awarded the Textbook and Academic Authors Association's McGuffey Longevity Award for its long and distinguished history of publication.

During the past SLOAC cycle (Fall 2014), all three SLOs for Oceanography 100 Lecture were met or exceeded. Oceanography 100 Lecture SLOs are being assessed again on a 3-year cycle in Fall 2017.

In addition, the Oceanography Program at Palomar College is participating in two nationwide college-level curriculum development/Beta testing projects, both of which are funded by NSF to incorporate the use of near real-time oceanographic data into student activities, which are being used by a host of oceanography institutions across the country. These projects are: (1) Ocean Tracks, which uses satellite tracking of marine animals to study migration patterns and behaviors (see: <http://oceantracks.org/>), and (2) the Ocean Observatories Initiative (OOI) Data Explorations: Exploring Primary Production with Data (see: <http://education.oceanobservatories.org/productivity/>). Trujillo continues to work with curriculum development teams and participated in an OOI Data Explorations national workshop in June 2017 at Rutgers University (New Jersey) entitled Exploring Geological Oceanography with Data.

A new, updated lab manual was produced in Summer 2016 covering timely topics (i.e. ocean acidification and satellite observation of Earth's oceans) utilizing technology and current data from research sites. Minor revisions of the manual were completed in Summer 2017 to keep pace with changing technology and web-based resources.

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.**

One of the biggest improvements occurred during Fall 2016, when the Oceanography Program WSCH/FTEF reached an all-time high for WSCH/FTEF of 714.2, which demonstrates the efficiency of the Oceanography Program.

To increase enrollments and offer students non-traditional course offerings, a new section of Oceanography 100 Lecture Hybrid was offered during Fall 2017 (CPPEN-S, FT1). This course was very popular and filled to capacity with a waitlist, both of which have not been experienced before for an Ocean 100 Lecture class at CPPEN. This course was very successful and we should consider offering more hybrid courses at various locations in the future.

In addition, the Oceanography Program will assess the Oceanography 100 Lecture SLOs during Fall 2017. The Oceanography Program will also convene an annual Oceanography Lecture Instructor's Meeting in January 2018 to discuss SLOs and demonstrate best practices in teaching SLO content areas, both of which help ensure quality and consistency of instruction within Oceanography 100 Lecture.

After a year of use, we have confirmed that the new laboratory manual with updated visual and data-rich resources better addresses the learning styles of the current student population.

5. Unanticipated Factors:

Have there been any unanticipated factors that have affected the progress of your previous plan?

Increasing Oceanography 100 Online Class Size

In Spring 2016, the class size of Oceanography 100 Online was increased from 32 to 42 students (a 31% increase in class size). The district is proposing to increase Oceanography 100 Online class size from 42 to 60 (a total increase from 32 to 60 students, which represents an 87.5% increase in class size). If online class size is increased to 60, it will kill quality teaching in the sciences at Palomar. In addition, the increase from 32 to 42 students has already negatively affected the number of online course sections in the sciences. Limiting the number of online class offerings in the sciences is not good for our students, who will likely seek other colleges to enroll in these classes. And it's not good for Palomar, especially in a time when the college is trying to achieve enrollment stability.

There is abundant evidence from educational studies that show that smaller class sizes facilitate student interaction (see references below). Since online classes require specific pedagogy to increase student-to-student and student-to-instructor interaction, it's a mistake to enforce the same large class sizes as face-to-face classes. Anyone who has taught both face-to-face and online knows how different the two types of classes are.

Increasing online class size to 60 is pedagogically unsound. It's counter to the principles of small class sizes in community colleges. It's not good for our students, instructors, or Palomar College class offerings. Trujillo asks for administrative support to help keep his carefully-designed Oceanography 100 Online classes that emphasize active learning and student interaction from turning into the equivalent of a massive online course.

References:

Bettinger, Eric, et al., 2014. The Effects of Class Size in Online College Courses: Experimental Evidence, Center for Economic Studies [CESifo Area Conference Program Munich Germany at: http://www.cesifo-group.de/ifoHome/events/Archive/conferences/2014/09/2014-09-12-ee14-Hanushek/Programme.html](http://www.cesifo-group.de/ifoHome/events/Archive/conferences/2014/09/2014-09-12-ee14-Hanushek/Programme.html)
Key statements: "... interactions substantially change in an online setting [in large classes] where discussion boards are the primary forum where peers interact." and "While online courses may present an opportunity to reduce higher education costs, any adverse impact of class size could lead to a deterioration in the overall quality of college courses."

Orellana, Anymir, 2006. Class size and interaction in online courses. The Quarterly Review of Distance Education, Volume 7(3), pp. [229–248 at: http://wps.prenhall.com/wps/media/objects/4512/4621309/Survey_Online_Class_Size.pdf](http://wps.prenhall.com/wps/media/objects/4512/4621309/Survey_Online_Class_Size.pdf)
Key statement: "... [an online] class size of 18.9 was perceived as optimal to better achieve the course's actual level of interaction, and [an online] class size of 15.9 was perceived as optimal to achieve the highest level of interaction."

Worthen, Helena, 2013. What Do We Know about Teaching Online? American Association of University Professors Report of Survey [Findings at: https://www.aaup.org/article/what-do-we-know-about-teaching-online#.WKMI0X8zWUI](https://www.aaup.org/article/what-do-we-know-about-teaching-online#.WKMI0X8zWUI)
Key statement: "The typical [online] class size for our respondents, regardless of sector, was twenty to forty."

Note that Trujillo will be on sabbatical during Spring 2018 and is planning to take load bank leave during Fall 2018.

There are several additional concerns impacting the OCN Lab:

1) The Oceanography Lab classes have no official wait list. We have been told that because OCN Lab has a pre-requisite of enrollment in OCN Lecture, which must be verified by registration software, a waitlist cannot be generated. As sections fill before the beginning of the semester, potential students are not given the opportunity to be added to a wait list, which gives students the false impression that the class is unavailable for them. Seats are only opened up as students drop in the

pre-semester registration period. Only students who happen to check at the right time are able to register for the class. Students have complained about this! We are no doubt losing students to this software issue.

2) Surveys of enrolled lab students show that most students (more than 80%) are taking face-to-face OCN 100 lecture sections. This makes sense since these students are already on campus and it affords a certain convenience to enroll in the lab course. Although efforts are made by online instructors to encourage enrollment in the lab course, the fact remains that very few online students do enroll in the lab course. This generates concern as enrollments in online sections increase (resulting primarily from increased enrollment caps), the pool of potential students for lab declines. A decline in Oceanography lab students will impact our ability to offer the unique field experience (boat trip and lab) at the Ocean Institute in Dana Point, a favorite of students.

3) Scheduling issues with new compressed schedule: Early lab times (11:20am) overlap with existing lecture courses thus reducing the number of prospective lab students; Timing also limits time availability for lab set-up (10 minutes between classes is not sufficient, causing the start time for some labs to be delayed), and field trips are impacted by lunch-time traffic and overlap with public school groups; end of lab travel time is insufficient causing conflict with student schedules. Later lab times (2:40pm) present issues with availability of daylight for field trips, especially during the fall semester. Increased costs for the program at the Ocean Institute, combined with declines in enrollment are putting upward pressure on the cost we must charge students to participate in this field experience. We have potentially won approval from the Administration to offer lab sections at our previously successful time of 1:00pm. We expect to implement this change with the Fall 2018 schedule.

4) Facilities, specifically laptop computers continue to be an issue. These machines are old, hand-me-downs which do not charge fully, have defective touch pads, have limited memory capacity, and often crash during use causing students to lose valuable learning time. The laptops are used in 50% of the in-class lab activities and although Information Services has worked with us to rectify concerns surrounding the current laptops, some issues remain unresolved. We also have a concern in that many education animations are based on Adobe Flash which is often not supported by the software on the laptops. We are hoping for a solution to this issue.

5) Patty Deen expects to retire at the end of the Fall 2018 semester. This will impact the continuity of the OCN Lab program and potentially the quality of the program if a full-time replacement is not hired in a timely fashion.

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/>

Course SLO assessments were conducted during the Fall 2014 Semester for all Oceanography 100 Lecture courses and the agreed-upon time interval for assessments is once every three years. Trujillo organized and compiled the results of the assessments.

Oceanography 100 Lecture students participated in an assessment for the following SLOs: (1) processes of plate tectonics, (2) El Niño/La Niña cycles, and (3) middle latitude marine productivity. Students were assessed by a series of multiple choice questions on the final exam for the course. The assessment states that for the assessment goal to be met, 70% of the students must provide a correct answer.

For the first SLO assessment on processes of plate tectonics, a total of 346 students from 13 lecture sections (both face-to-face and online) participated in the assessment activity. The results show that the average score on the assessment was 73.4%, which indicates that this assessment goal is being met.

For the second SLO assessment on El Niño/La Niña cycles, a total of 337 students from 13 lecture sections (both face-to-face and online) participated in the assessment activity. The results show that the average score on the assessment was 70.0%, which indicates that this assessment goal is being met.

For the third SLO assessment on middle latitude marine productivity, a total of 345 students from 13 lecture sections (both face-to-face and online) participated in the assessment activity. The results show that the average score on the assessment was 80.3%, which was the highest score of the three assessments and indicates that this assessment goal is indeed being met.

The likely reason for the high assessment score for the third SLO assessment on middle latitude marine productivity is due to the fact that it was the most recent topic covered of the three SLO topics, all of which were assessed during the final exam in the course. In all three SLO assessments, slightly different content covered by various instructors may have resulted in the range of scores on the assessment. For example, some of our new adjunct faculty had very low assessment scores, which will likely improve as these new instructors gain experience in teaching this subject matter. It is also noted that online sections had some of the highest assessment scores overall, but this is likely to change as Oceanography 100 Online class sizes are increased from 32 to 42.

The results of the SLO assessments were discussed with all adjunct faculty during the Oceanography 100 Lecture Instructor's Meeting that was held on January 8, 2015. By sharing the ways in which various instructors teach each SLO content area, there is an effort to ensure quality and consistency of instruction. In fact, some of these successful teaching techniques have been adopted by other instructors. In this way, the SLO assessments have improved our courses and program.

Lastly, Oceanography 100 Lecture SLOs will be re-assessed during Fall 2017 and there will be a similar meeting and discussion of SLO assessments at the January 2018 Oceanography 100 Lecture Instructor's Meeting.

We have a set of three OCN Lab SLOs which are evaluated on a rotating schedule. Students have recently completed the evaluation of their understanding of tides and tidal charts. Previously students struggled with certain concepts related to variations in monthly tidal patterns. The new lab manual directed student learning during the lab period such that previous confusion over this topic appears to have been clarified as students showed increased understanding of this topic. Additional evaluation with other students during other semesters will of course be needed to verify this result.

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
Reduce online class size from 42 to 32; resist district efforts to increase Oceanography 100 Online class size to 60 students		X	
Develop a hybrid course offering for Oceanography 100 Lecture; this course was very successful and we should consider offering more hybrid courses at various locations in the future	X		
Hire a full-time replacement oceanographer since Patty Deen is retiring in December, 2018		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	Reduce online class size from 42 to 32 students; resist district efforts to increase Oceanography 100 Online class size to 60 students
Strategies for implementation	This is a working condition issue, so Trujillo is working with the union to fight the district's attempt to increase Oceanography 100 Online class size to 60 students
Timeline for implementation	Fall 2018
Outcome(s) expected (qualitative/quantitative)	Increasing Oceanography 100 Online class size from 32 to 42 has

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	already negatively affected the success and retention rates of Oceanography 100 Online; these trends need to be reversed
Goal #2	
Program or discipline goal	Hire a full-time replacement oceanographer since Patty Deen is retiring in December, 2018
Strategies for implementation	Assess status of program; Complete Faculty Rationale Form
Timeline for implementation	FY 2018-2019
Outcome(s) expected (qualitative/quantitative)	Ensure consistency and quality of instruction
Goal #3	
Program or discipline goal	Expand the Oceanography Program to the Southern Education Center (SEC) in Rancho Bernardo.
Strategies for implementation	Collaborate with other departments (such as the Biology Department) to ensure smooth transition into the new facility as we expect to share classrooms rather than having dedicated program areas. Equipment lists for Oceanography lecture and lab instruction have already been submitted to the administration.
Timeline for implementation	Classes expect to be offered at SEC beginning Summer 2018.
Outcome(s) expected (qualitative/quantitative)	Expand offerings to better serve the southern section of our District while maintaining a high quality program. Previous efforts to offer Oceanography lecture in non-dedicated Palomar facilities (such as Mt. Carmel High School) were unsuccessful due to lack of instructional support. Presence of instructional support will enable both lecture and lab classes to be offered.

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	11/7/2017

***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
Date	March 13, 2018

1. Strengths and successes of the discipline as evidenced by the data and analysis:

Excellent review. Motivated faculty and staff.

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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. Program analysis is probably the best I have seen in an annual report- excellent use of data, organized well, great analysis and hey- impressive data as well! 2. Also same for success rates- I'm feeling very inspired by this review (again doesn't hurt how well you are doing overall) 3. Retention rates are also really impressive- esp. for DE- what do you attribute this to? 4. Proud moments are also fantastic – NSF curriculum project is fascinating 5. Ive been annoyed by that waitlist issue also- seems like there must be a way around that 6. SLOS are amazing- well written, discussed and analyzed here- I want to use this as a model if I can- I'm not kidding- this is really informative and thoughtful 7. Appreciate the level of analysis- you have actually gone over and above what is needed for annual review but your honesty, critical thinking, inclusion of data and thoroughness is much appreciated

2. Areas of Concern, if any:
3. Recommendations for improvement: