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## OVERVIEW OF PROGRAM REVIEW AND PLANNING FOR INSTRUCTIONAL PROGRAMS

Program Review is about documenting the plans you have for improving student success in your program and sharing that information with the 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 our new Guided Pathways plan, this review becomes even more crucial for the success of our students and college.

We are using the Strengths, Opportunities, Aspirations, Results (SOAR) strategic planning technique to help us focus on our current strengths and opportunities, create a vision of future aspirations, and consider the results of this approach.

### BASIC PROGRAM INFORMATION

**Academic Year**  
2020-2021

**Are you completing a comprehensive or annual PRP?**  
Comprehensive

**Department Name**  
Biology

**Discipline Name**  
Biology (BIOL)

**Department Chair Name**  
Jim Gilardi

**Division Name**  
Mathematics, Science and Engineering

**Website address for your discipline**  
<https://www2.palomar.edu/pages/lifescience/>

#### Discipline Mission statement

The mission of the Biology department is to provide students with a foundation in biology that will allow them to understand and appreciate the natural world around them, think critically about biological issues, and make informed personal and societal decisions based on this knowledge. In this preparation we are committed to providing hands on opportunities to students so they can apply their knowledge and build written and oral communication skills to express critical thinking. We intend to make students aware of the diverse disciplines within the biological sciences, how these disciplines are interrelated and the problems and opportunities unique to each discipline. We aim to prepare our majors students for transfer to a University program and/or employment in various biology-related areas by educating them in the fundamental concepts, knowledge, and laboratory/field techniques and skills used the life sciences. In addition, the department offers courses deigned to prepare pre-health professional students for a variety of 2-year and 4-year health professional programs.

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

**Does your discipline have at least one degree or certificate associated with it?**  
Yes

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

**List all degrees and certificates offered within this discipline.**  
AS-T: Biology  
AS, CA: Biology- Preprofessional  
AS, CA: Pre-Allied Health

**Please list the names and positions of everyone who helped to complete this document.**

Jim Gilardi, Elizabeth Pearson and Richard Albistegui-Dubois

Use the link to provided to help answer the staffing questions below. This form requires a login and password to access. Please use your Palomar email and password to log in.

Link: [Permanent Employees Staff Count](#)

**Full-time Faculty (total number of FT faculty in your discipline)**

14

**Full-time Faculty (FTEF)**

13.40

**Part-time faculty (FTEF)**

24.42

**Classified and other permanent staff positions that support this discipline**

Steve King - ISA

Margarita Vega - ISA

Diep Vu - ISA

Terhea Williams - ISA

Christina Fuller - ISA

**Additional hourly staff that support this discipline and/or department**

Several student hourly workers support the Biology Department. These student workers help prepare some lab materials, clean laboratory glassware and equipment and clean laboratory preparation rooms and laboratory classrooms. Most student worker hours are allocated to Microbiology, which is a very labor intensive and time consuming course to prep for and to clean up after. Just prior to COVID-19 we had 6 student hourly workers, of which four were short-term employees and two were work study employees. They collectively averaged about 260 hours per month (65 hours per week).

## PROGRAM INFORMATION

In this section you are asked to consider your programs, their 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 well do your program's learning outcomes communicate the scope and depth of the degree/certificate offered?**

Honestly, not particularly well. When we wrote our program SLOs we were trying to find commonalities among our courses that we could assess rather than thinking about what our students need to leave with. We are currently redesigning our programs and degrees to capture the true goals of our students and then write program SLOs that reflect the needed outcomes for those goals.

**How do they align with employer and transfer expectations?**

Employers are not usually looking for people straight out of these programs. Our general and AS-T programs are designed for transferring to four-year biology programs, and our allied health program is designed for transferring to nursing, PT, and OT programs. Thus, outside of the basics that employers will be looking for (content knowledge and preparation, basic academic skills such as reading and writing), employer expectations are largely covered by the programs that come after ours.

Transfer expectations are met by design in these programs. The AS-T is designed specifically to meet the requirements for AS-T degrees determined by the state, and the allied health program is set up to cover the anatomy, physiology, and microbiology core preparation expected in health programs.

**Describe your program's plan for assessing program learning outcomes.**

The new programs are approved or being approved by curriculum. The faculty in the department have already had a preliminary meeting oriented around creating new program SLOs, which will be entered into TracDat soon. We are considering how best to assess these, given the difficulty of using embedded course assessments; our discussions should identify useful options.

**Summarize the major findings of your program outcomes assessments.**

The results of our current program outcomes were satisfactory based on the criteria we created but reflect learning particular concepts that are shared across our discipline. We feel this is still valuable and celebrate the learning successes. However, we anticipate creation of new program SLOs which should be more meaningful in terms of ability to identify barriers to student success.

**Reflecting on the major findings you summarized, what are some questions you still have about students' learning in your program that you have not yet been able to address with your outcomes assessments?**

As we create these programs, we will be interested in understanding several areas. One major one will be about student perception of preparedness for transfer, i.e. does the student feel that they have what they need to be successful. Content knowledge is also an obvious area for assessment. We have considered whether to assess student knowledge of transfer requirements, but honestly we think that that is not an outcome for our department as much as for student services, since it is not covered in our courses.

Depending on the degree or transfer goals of our students, they have the choice of three different GE pathways:

- [Associate Degree GE Requirements](#)
- [CSU GE Requirements](#)
- [IGETC Requirements](#)

Palomar College has identified a set of General Education/Institutional Learning Outcomes, 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 General Education/ Institutional Learning Outcomes? In your response, please specify which GE/ILO(s) your discipline supports.**

Our courses generally align best with certain specific ILOs. Many of our courses align with ILOs in written communication (ILO 1A), critical thinking (ILO 3A), information literacy (ILO 3B), and foundational knowledge (GE). They generally do not align with intercultural knowledge (ILO 4A), ethical reasoning (ILO 4B), civic knowledge (ILO 4C), or integrative learning (GE).

**Summarize the major findings from your course outcomes assessments that are related to the General Education/Institutional Learning Outcomes that your discipline supports.**

Assessments in our courses are connected to the GE Content Knowledge outcomes; most of them have reflected acceptable mastery, with some exceptions; those have led to discussions among faculty as to how best to revise specific areas of coverage.

Many of our courses include scientific method cSLOs, which is tightly related to critical thinking (ILO 3A). Assessments of these cSLOs usually show very good mastery of the ability to design and/or analyze a scientific experiment. In some higher-level courses, more detailed assessments of this outcome identified difficulties in fine-grained analysis, as different aspects of the scientific method are approached differently by different instructors.

**PROGRAM COMPLETIONS**

Student success is at the core of what we do in assisting students in achieving their goals.

The Chancellor's Office Vision for Success stresses the importance of Program Completion as a major goal for our students. In addition, transfer and career readiness are key components of Palomar College's mission statement. This year, our funding formula has also changed reflecting this emphasis, providing additional funding as a function of the number of completions.

In this section we will identify a program standard and a stretch goal (what you would like to move toward) for program completions.

The standards represent the lowest number of program completions deemed acceptable by the College. In other words, if you were to notice a drop below the set standard, you would seek further information to examine why this occurred and strategies to increase completions.

In this section we will identify a program standard and a stretch goal (what you would like to move toward) for programs.

**List the number of completions for each degree/certificate for the previous year.**

2017-18

AS: 2

AS-T: 9

CA: 2

2018-2019

AS: 5

AS-T: 27

CA: 7

2019-20

AS: 1

AS-T: 41

CA: 1

**Have your program completions Increased, decreased, or stayed the same over the last 5 years?**

Increased

**What factors have influenced your completion trends?**

We are seeing a strong upward trend in completions, with AS-T increasingly dominant. This is probably largely due to our encouraging students to claim completions which they have already done. Since the actual AS or AS-T are not required for transfer, historically many students have not bothered to file for the degree. We have started encouraging students in capstone classes to do so, and apparently, this has been successful.

**Are the courses in your discipline required for the completion of other degrees/certificates?**

No

**Do you have programs with 7 or fewer completions in the last 5 years?**

Yes

**What steps are you taking to address these completions?**

The existing AS and CA are the degrees which are no longer relevant to students, which is why we are establishing new programs. Once the programs in allied health and general biology are live, we will encourage students to file for completion of those degrees. If in a few years we are seeing low completion rates in those programs, we will reevaluate their viability.

Previous low completions were probably a result of students not filing for degrees, since those were not necessary for transfer. We have seen a change in that trend in the most relevant program (AS-T). In the next few years, we hope to see increasing completions in the new AS (oriented around UC transfer) and Allied Health program.

**What is your program standard for program completion?**

35

**Why did you choose this standard?**

This is difficult to establish given that our programs are changing. However, I am suggesting 25/year in the AS-T, 5/year in the Biology (which is best suited for UC transfer), and 5/year in Allied Health. The latter two are low because many students in those pathways are transferring and do not have to claim the completion to achieve their goals, though we will encourage them to do so.

**What is your Stretch goal for program completion?**

45

**How did you decide upon your stretch goal?**

If we can double the number of students claiming completion of the Biology and Allied Health programs, that would bring us to 45 completions per year. I would take that as evidence that our encouragements were succeeding better than expected.

**ENROLLMENT AND EFFICIENCY TRENDS**

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).

This information can be found by going to the "Program" page in the [PRP Data Dashboard](#).

**What was your enrollment trend over the last 5 years?**

Increased

**What was your efficiency trend over the last 5 years?**

Stayed the same

**Were these trends expected? Please explain.**

For all classes together, enrollment is increasing (driven mostly by the 210-212 series; see below). Fill rate has declined but recently increased (range 102% to 91%, average around 96%). WSCH/FTEF is at or above college standard, ranging from 529 to 569, overall steady.

Gen bio aggregate: Enrollment dropped from 2014-2017, then has recovered somewhat. Fill rate has generally been in the mid-to-high 90% range, with a dip to 88% in fall 2018. WSCH/FTEF has been above standard, ranging from 585 to 646.

BIO 200 + 201: Enrollment peaked Fall 2015, declined somewhat through fall 2017, and has recovered somewhat. Fill rate is very high, 92-105%. WSCH/FTEF is low, ranging from 458 to 500.

BIO 210-212: Enrollment has increased dramatically, almost doubling since fall 2014. Fill rate is high, ranging from 97% to 115% (!). WSCH/FTEF is below college standard slightly, ranging from 490 to 531.

Overall interpretation: The department is healthy and efficient, with gen ed classes generating very high efficiencies which offset the lower efficiencies of the smaller upper division lab courses (which are sensitive to class size more than the lower division courses). Fill rates are high to exceptionally high, suggesting significant need for more sections, especially of the 210-212 classes; instructors in those classes are routinely enrolling well over class caps to meet student demand.

**Program Information Summary**

Consider your program outcome assessments, completions, and enrollment/efficiency trends, as well as other internal and external factors.

**How have these factors contributed to the success of your program(s)?**

Our AS-T program is the most relevant here; the strong upward trend is evidence of its continuing relevance to students. We have excellent reasons to believe that our allied health program can be equally successful, given the extremely high demand for the courses central to that program. Demand for nursing and biology careers remains high, so we anticipate these programs to remain successful.

**How have these factors presented challenges for your program(s)?**

Historically, our AS and CA programs have struggled because students in our classes did not bother to file for completion of those programs. We have changed that for the AS-T, and are hopeful that the new programs will show better completions. The general biology AS which we have created, which is more oriented around UC transfer, is likely to be the one which struggles most. The conflicts between CSU and UC in establishing expectations for transferring students has made it necessary for us to establish both the AS-T and general AS degrees, which splits potential completers. We do have a substantial number of students wanting to transfer to UCs, so once this program is live and we can convince UC-bound students to use it and file for completion, we hope to see a substantial increase there.. We also have a lot of students wanting to go to nursing school, but completing a degree has little or no value for their transfer chances. Convincing those students to file for completion of the Allied Health degree will be key.

The Chancellor's Office Vision for Success stresses the importance of reducing equity gaps through faster improvements of underrepresented groups.

ACCJC also requires that colleges establish institutional and program level standards in the area of success rates. These standards represent the lowest success rate 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.

**Click on this link to review the course success rates (A, B, C, or Credit) for your discipline.**

In this section we will identify a course success rate standards and a stretch goal (what you would like to move toward) for programs.

Course Success 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/> )

## COURSE INFORMATION

### COURSE SUCCESS AND RETENTION

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

70.0%

**Why did you choose this standard?**

College Standard.

**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.**

The success rates for the discipline as a whole have remained fairly steady (variation fluctuated around an average of about 66%). This success rate is just below our program standard for the discipline as a whole. Looking closer at success rates, we find a great deal of variation between different courses.

If we consider the Allied Health pathway, for example, we need to focus on BIOL 102, 210, 211, and 212, as these are some of the core courses for that program. Biology 102's success rate has varied significantly in the past five years, between 71 and 50% (Fall 2017 being at the lowest end). Biology 210 (Anatomy) has been on a general downward trend, from about 65 to 55%. Biology 211 and 212, on the other hand, have higher success rates (averaging about 75% each, possibly with a slight upward trend). This might reflect that Biology 102 is a general education course and Biology 210 is the traditional "gateway" to the final sequence; students who don't do well in 210 don't go on to take Biology 211 and 212.

Considering the AS-T and UC transfer pathways, these center more around BIO 200 and 201. Biology 200 is averaging around 80% success, and Biology 201 around 85%. These courses are upper-division general biology preparation courses, suitable for transfer of biology majors to a UC or CSU, and thus are usually taken by students with good preparation.

Averaging all of the lower-division general biology courses together, we see a steady success rate around 67%, comparable to the discipline as a whole, and has been holding fairly steady. Looking at the upper division courses for all programs (200-212), we see a steady rate at just about 69-70% (which is heavily skewed by the large number of 210 students and their low success rates). These outcomes suggests that department and programs, with rigorous lower-division and general ed courses, leading to upper division transfer and career preparation have reasonably high success rates. Biology 210 is an exception, and this is at least partly due to the large numbers of students wanting to go into allied health, of which many are not well prepared for the rigor of Biology 210. In addition, we had to remove the Biology 102 prerequisite for Biology 210, resulting in even more poorly prepared students.

**What is your stretch goal for course success rates?**

75.0%

**How did you decide upon the goal?**

We want to be optimistic but also realistic and not encourage grade inflation.

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

Stayed the same

**Was this expected? Please explain.**

There is a slight (4%) decrease in retention rates for the department as a whole over the past years. The average retention is fairly high, around 90%.

Looking at this by program, the main allied health classes show as follows:

BIOL 102: Steady around 85%, with a notable drop in Fall 2017 to 73%.

BIOL 210: Slow decline from 88 to 81%

BIOL 211: Slow decline from 95% to 85%

BIOL 212: Steady around 90%

Overall, these rates appear satisfactory. We are curious about the slight decline seen in Biology 210 and 211.

For the core majors biology courses, we see:

BIOL 200: An increase from 89% to 96%

BIOL 201: Slight increase from 88% to 94%, with a peak at 98%

These seem excellent; I think the majors biology instructors should be commended for this outstanding retention.

BIOL 100 (general biology) is steady around 92%, and all the general biology courses in aggregate are steady at about 91%.

Our interpretation is that the instructors at all levels are doing a good job at retaining students, with special kudos for the 200 and 201 classes.

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

Age

Ethnicity

Special Pop. (Veteran, foster youth, etc.)

**Age: Why do you think age differences exist? What do you need to help close the gap?**

For BIO 210-212, success rates rise noticeably with age (<=19 54%, n=118, 20-24 65%, n=473, 25-49 72%, n=423).

Reasons for this likely include that older students have better study skills, take course work more seriously and that some of the older students have already completed degrees in biology or are already LVNs or CNAs (various kinds of lower-level nursing qualifications) who are preparing to apply to nursing schools.

**Ethnicity: Why do you think ethnicity differences exist? What do you need to help close the gap?**

For general biology classes in aggregate, retention rates vary across ethnicities, with success rates being higher in white students than any other group: White 79%, Asian, Filipino, and Hispanic all 62% and Blacks 50%.

For BIO 200 + 201: Success rates are significantly higher in Asian students than other groups (Asian 100%, Filipino, Hispanic, White 82-85%). Retention rates are higher among Asian, Hispanic, and white students (94-100%) but lower among Filipino (82%)

For BIO 210-212: success rates are significantly lower among Black and Hispanic students (50 & 57%) than other groups (Asian, Filipino, white, others all 74-76%). Retention slightly lower in Hispanic (80%) than other groups (85-89%)

Overall conclusion: Black students are absent from 200 & 201, and struggle more than others in both gen ed and allied health classes. Hispanic students struggle in allied health classes. It is unclear why this is, but this could be due to a lack of role models and mentors, unconscious bias in instructors, lack of cultural competence (Biology full-time faculty are effectively all white), or socioeconomic differences affecting preparedness, time available to study, etc.

One Biology faculty member is participating in a strong workforce initiative focusing on closing these gaps; he will report his findings to the department. It is possible that department-wide participation in culturally aware teaching practices would be beneficial.

It is also worth noting that a substantial portion of these classes are taught by adjunct faculty, with the BIO 200 + 201 classes having more full-time teaching. Any interventions will need to include part-time faculty as well as full-time; this will mean that we will need to be able to pay them to participate.



**Special Populations: Why do you think special population differences exist? What do you need to help close the gap?**

Veterans: For general biology aggregate, veterans have a 78% success rate, nonveterans 68%. Retention for the two is the same, at 91%

For BIO 210-212, veterans have a 47% success rate (n=43), nonveterans 68% (n=979). Veteran retention is higher (95%) than nonveteran (84%)

It is very interesting that these patterns are reversed between general biology and the allied health classes. The low success rate for veterans in the 210-212 classes is striking. I am not aware of any bias against veterans in these classes, and the high retention rate suggests motivation is not the issue. One possible explanation is that many of them are using veteran's funding to pay for classes. These funding sources will generally only pay for the classes listed as required--and since we removed the prerequisite requirements for these classes, veterans are generally unable to take even strongly recommended preparation classes (such as introductory bio and chemistry) before taking BIO 210-212. In the opinion of the instructors for these classes, this puts veterans at a disadvantage. We are planning on trying to reinstate these prerequisites in the near future, which will (hopefully) help veterans get more success by allowing them to be funded to take prerequisite classes.

Other possible explanations: The allied health classes are quite difficult and require a great deal of study time; it is possible that veterans also face socioeconomic and employment challenges which make these especially difficult. It would be good to determine whether that is the case, and whether there are student support services which could be offered.

Training on teaching techniques for veterans, as well as awareness of issues specific to veteran students, might be useful for full-time and part-time faculty in the department.

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

Yes

**Please share any best practice methods you use for online courses.**

The department is exploring many new areas in online teaching due to the pandemic. POET training is becoming widespread. Many faculty are exploring semi-flipped models, in which lectures are recorded outside of the class and online discussion time is used for review and questions; others use a more traditional lecture format via Zoom.

## COURSE LEARNING OUTCOMES

### How is course assessment coordinated across sections and over time?

In general, each course has a designated lead faculty (a full time faculty member) who is responsible for coordinating course SLO assessment among sections. Due to the difficulty of coordinating complex assessments, and making sure that assessment results do not simply reflect differences in teaching style, these assessments are often simple, which may limit their usefulness.

Generally, these lead faculty members then organize discussions, looking at current vs. historical results, and discussing whether these indicate the need for changes.

### How have you improved course-level assessment methods since the last PRP?

We continue to discuss and improve upon our course assessment methods. Many wonderful conversations have occurred among faculty to evaluate and improve upon our instruction and assessment methods.

### Summarize the major findings of your course outcomes assessments.

The biggest finding is that it is very difficult to create a singular assessment that fairly evaluates student success across multiple classes taught by multiple instructors. As scientists, I think it is not surprising that we can get hung up on process here while people discuss the best way to get unbiased data from our methods.

### 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?

It would be interesting to address whether a previous shift in the class structure from 5 to 4 units (for BIO 210-212) has impacted students learning. The shift has had relatively little direct impact on the course structure outside of requiring some awkward room changes mid-class for some sections (a result of the unit shift combined with block scheduling), so it is perhaps unlikely.

As we continue to revise course SLO assessments, we are hoping to make them more meaningful in identifying specific areas for improvement. In a number of cases, what our assessments have found is that it is difficult to assess student mastery in some areas across sections of a course when there is significant variation between instructors in how certain topics are covered.

### 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?

There have been a number of instances of improvements being identified. In BIOL 125, instructors determined that provision of a study guide would likely increase student performance on one particular SLO; for another SLO, it was determined that active learning techniques would likely be more effective. In BIOL 200, a lower student achievement on one SLO caused instructors to increase group work activities.

## 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.

### How do your course outcomes help your students achieve their program outcomes?

We are in the process of modifying our program outcomes to reflect what we perceive to be most important to a student graduating with a degree in one of our department programs. In the inception of program goals we were trying to assess umbrella content themes that we expected a student to understand after taking our courses rather than looking at the program more holistically. In addition, we have recently created a new program and eliminated a program that was more of a dead end for students. We look forward to assessing our new program outcomes and making adjustments from that data.

**How do your degree maps and scheduling strategy ensure scaffolding (how all parts build on each other in a progressive, intentional way)? How do you share the maps with students?**

We are lucky that we have numerous offerings of our key program courses such that students are not limited by our class schedules. Our maps are currently available on the Palomar website but in the future we will make sure to offer the course maps on our course and department websites.

**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.**

We offer courses for our biology majors in both daytime and nighttime formats but with the content load we are unable to offer them in the fast paced formats. We do however offer our GE Bio class in multiple formats (day/night and 16/8 week) as well as our pre-allied health courses.

**How do you work with other departments that require your course(s) for program completion?**

We have an open dialogue with the nursing department regarding our pre-allied health courses and have worked collegially with them for years.

**Does your discipline offer cross-listed courses?**

Yes

**How do you work with the other department(s) to ensure consistent curriculum per the COR and minimum qualifications? How do you coordinate course scheduling?**

We have one course that is currently cross-listed with Nutrition and are having a conversation about whether this course needs to be de-listed from our department.

In 2019 the Biology, Chemistry, Physics and Math Departments met to change the scheduling times of courses that STEM majors need, in hopes of reducing scheduling conflicts. The most significant change adopted was Chemistry changing the scheduling times for Organic Chemistry, which had previously been a scheduling problem for many STEM majors.

**Are there curriculum concerns that need to be resolved in your department? What are they?**

Our pre-allied health courses used to have prerequisites that our department feels are critical for setting our students up for success but we removed them to help nursing reduce the number of units students have to earn a nursing degree from Palomar College. The problem though is that only 3% of our pre-allied health students go on to the Palomar Nursing program so the removal of the prerequisites negatively impacts our students for the benefit of 3% of our enrollment.

**Are there courses that should be added or removed from your program - please explain?**

Currently, no, we have recently deactivated courses of concern other than our current attempt to deactivate Biology 185 (Human Nutrition) which is crosslisted with Nutrition 185 (Human Nutrition).

**How is the potential need for program/course deactivation addressed by the department?**

We discuss curriculum issues like deactivation during department meetings so that we get everyone's opinion and arrive at consensus.

We do not have any low enrollment courses that would make us question the necessity of a course based on enrollments. We believe we have the typical diversity of courses offered by most community colleges and that these courses serve the needs of our diverse student interests and majors. .

**Is your department pursuing non credit or not-for credit options at this time?**

No

**Are there areas you would like to expand?**

Our department has discussed a vet tech program and possibly a field biology program but we are not currently pursuing either right now. There is an attempt to develop an online Biostatistics course with CSUSM if grant money is found to support this project.

**Click here for information about [Noncredit](#) and [Community Education](#)**

**Is your department offering online classes?**

Yes

**How do you consider student needs when determining which classes and how many classes should be offered online versus face-to-face?**

Outside of the COVID crisis we consider the skills students gain in lab classes that are impossible to recreate in an online format. We have offered and continue to offer lecture format classes online.

**Describe other data and/or information that you have considered as part of the evaluation of your program**

We are considering program completion data in our evaluation as well as transfer data. In addition, we are having conversations with outside institutions to better set our students up for success.

## **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 and if so how would the new or emerging careers impact your future planning?**

Biology encompasses a diverse range of disciplines and careers. The majority of our biology majors aim for medical careers, biomedical research, biotechnology or careers related to zoology, botany or ecology. Unfortunately, there few job opportunities for biology majors with an AS degree, outside of some paying and often temporary positions. Most biology majors realize they need at least a baccalaureate degree, and most likely a graduate or professional degree to achieve their professional goal. So our Biology program for majors is aimed at preparing these students for successful transfer to a four year college, and not for entering a career after completing courses at Palomar College.

For the pre-allied health program, the most natural careers are nursing (levels from CNA to nurse practitioner), physical therapy, occupational therapy, dental assistants and hygienists, and medical school. Most of these are existing careers in allied health. While there do seem to be some emerging careers in the O\*NET database associated with allied health, they are more technician/vocational, and do not seem particularly well aligned with our pre-allied health program. Given the large demand for the allied health classes (e.g. BIOL 210, 211, 212), we do not see a need to realign our program to accommodate these emerging careers.

**What are the associated knowledge, skills, abilities (KSA's) needed for the occupations listed above? (click examples in the link above to get ideas)**

**Skills:** The most commonly required skills for biology majors include writing and oral communication skills, organizational skills, critical thinking skills, laboratory and field research skills, quantitative skills, basic computer skills (e.g. spreadsheet and databases) and applying scientific methodologies to solve problems..

**Knowledge:** Basic knowledge of biology, including knowledge of organizational levels, characteristics of life; chemistry, biochemistry, metabolism, genetics, evolution, biodiversity and modern biological laboratory and field research technique. Many careers in biology are highly interdisciplinary, so students benefit by having a broad range of knowledge outside of biology, including but not limited to computer science, math, chemistry, physics and government regulations.

**Abilities:** Apply biological knowledge and scientific methodologies to answer questions, collect, analyze and present data orally and in written form, apply critical thinking and quantitative skills to solve problems, and to be an independent learner and to work both independently and collaboratively.

**How does your program help students build these KSA's?**

For skills and abilities, in all of our courses we require students to write, to think critically, to apply scientific methodologies, to develop laboratory skills, to collect and analyze data, to use quantitative methods, to work alone and in groups and to demonstrate an understanding and application of biological information. For knowledge, the CORs for most of our courses require a basic knowledge of biology, including knowledge of organizational levels, characteristics of life, chemistry, biochemistry, metabolism, genetics, evolution, biodiversity and basic biological laboratory technique. Hopefully, by continuing to work on SLOs we can better assess how successful students are at acquiring these KSAs.

Reflecting on these KSAs we realize we should ensure each instructor in our Department is consistently aware of and focused on developing these KSAs. Not only would greater communication among Biology instructors increase the consistency of developing these KSAs in each course, it would allow for greater sharing of ideas and strategies to better develop these KSAs in our students.

One of our main goals in stressing these KSAs is to successfully prepare students for transfer to a university program or a professional program,

**Work Based Learning**

Applied and work-based learning (WBL) allows students to apply classroom content in professional settings while gaining real-world 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?**

We should attempt to engage more with the community. Some of our courses require local field trips (e.g. San Diego Zoo, Salk Institute, the Scripps Research institute). One problem we face in getting students direct experiences outside of the classroom is the large number of students we have to work with and the ability of local institutions to accomodate that number fo students.

We have worked closely with CSUSM and UCSD for our majors biology courses to share resources and grants. Many of our students have received lab shadowing opportunities at CSUSM and UCSD, but again, these experiences are limited relative to the large number of our students. But that is not an excuse to not keep trying to extend these types of experiences for students.

To really learn science, one has to do science. For this reason we strongly encourage students to apply for summer internships that are offered by hundreds of colleges each summer. And we share with these students how to apply and when to apply for these programs. We should ensure all of our instructors are knowledgeable of these opportunites and share these opportunites with their students.

## 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](#).

### Goals

#### Goal 1

##### Brief Description

Encourage major students to pursue an AST in Biology.

##### Is this a new or existing goal?

Existing

##### Goal Status

Ongoing

##### How will you complete this goal?

We have been passing out the AST graduation application form in our terminal Biology 201 course, hoping to get students to apply for the actual degree rather than transfer to a university without completing the degree at Palomar College. We would also like to begin having events for students interested in biology as a major to build connections between students and faculty and to allow them to learn about the AST program now offered.

##### Outcome(s) expected (qualitative/quantitative)

We have been encouraging students to apply for the AST degree since 2018. The number of students completing the AS-T degree has gone from 9 students in 2018, to 27 in 2019 and to 47 in 2020. We will continue educating students about the AS-T and encouraging them to apply for the AST degree. We will continue monitoring the number of students completing the AS-T in Biology.

##### How does this goal align with your department mission statement, the college strategic plan, and /or Guided Pathways?

This aligns with the college mission statement Objective 1.2: Encourage and promote innovative instructional and student support practices and strategies focused on strengthening teaching and learning.

In we have recently established a recognized guided pathway for our Biology majors. As with the AST, we will inform students about the guided pathway.

##### Expected Goal Completion Date

5/21/2021

#### Goal 2

##### Brief Description

Re evaluate our course SLOs and program SLOs so that they assess some course and program goals rather than just objectives found on the course outline of record.

##### Is this a new or existing goal?

Existing

##### Goal Status

Ongoing

##### How will you complete this goal?

Meet as a department to discuss possible changes.

##### Outcome(s) expected (qualitative/quantitative)

Changes to the SLOs for both courses and programs

**How does this goal align with your department mission statement, the college strategic plan, and /or Guided Pathways?**

This aligns with the college mission statement Objective 1.2: Encourage and promote innovative instructional and student support practices and strategies focused on strengthening teaching and learning.

**Expected Goal Completion Date****Goal 3****Brief Description**

We have recently restructured our existing AS degrees, by removing an old General Biology program that was outdated, and developed an AST program and a pre-health professional program. We will now continue to evaluate the requirements of local institutions and align our requirements appropriately.

**Is this a new or existing goal?**

New

**How will you complete this goal?**

Evaluate the requirements of local institutions and align our requirements appropriately.

We have just completed the addition of the new program (AS, CA Pre-Allied Health) to prepare students for pre-health professional pathways

**Outcome(s) expected (qualitative/quantitative)**

Changes to our degree pathways published in the course catalog.

**How does this goal align with your department mission statement, the college strategic plan, and /or Guided Pathways?**

This aligns with the college mission statement Objective 1.2: Encourage and promote innovative instructional and student support practices and strategies focused on strengthening teaching and learning. Additionally, we are developing a guided pathway for our pre-health students.

**Expected Goal Completion Date**

5/21/2021

**Goal 4****Brief Description**

Work to ensure that all online courses require direct communication between students and the instructor. We are in agreement with studies showing that required face-face communication between students and instructors improves retentions and student success.

**Is this a new or existing goal?**

New

**How will you complete this goal?**

Add this requirement to the syllabus of each online course, and continue to encourage more direct contact with students in all online courses.

**Outcome(s) expected (qualitative/quantitative)**

We hope to see an increase in success and retention in these courses.

**How does this goal align with your department mission statement, the college strategic plan, and /or Guided Pathways?**

This aligns with the college mission statement Objective 1.2: Encourage and promote innovative instructional and student support practices and strategies focused on strengthening teaching and learning.

**Expected Goal Completion Date**

5/21/2021

**Goal 5****Brief Description**

Continue increasing and improving our course offerings at the south and north centers. In the next year we hope to have a cadaver storage room and a cadaver to use for our Human Anatomy (Biology 210) sections at the SEC.

**Is this a new or existing goal?**

Existing

**Goal Status**

Ongoing

**How will you complete this goal?**

Continue to emphasize the need for the centers to have the same quality of instruction as offered on the main campus.

**Outcome(s) expected (qualitative/quantitative)**

Success of this goal should be reflected in the success and satisfaction of students enrolling in offered course on these satellite campuses.

**How does this goal align with your department mission statement, the college strategic plan, and /or Guided Pathways?**

This aligns with the college mission statements Objective 5.1: Increase course offerings in the southern portion of the district while maximizing enrollment on the main campus AND \*Objective 5.2: Increase course offering in the northern portion of the district while maximizing enrollment on the main campus.\*

**Expected Goal Completion Date**

5/21/2021

**Goal 6****Brief Description**

Ensure students have updated and working laboratory equipment to succeed in all of our laboratory courses.

**Is this a new or existing goal?**

Existing

**Goal Status**

Ongoing

**How will you complete this goal?**

Currently we have the necessary classroom equipment needed for the courses we offer, with the exception of a cadaver and cadaver storage room at the SEC. Laboratory equipment used by students throughout the day, in multiple course sections, semester after semester, does require maintenance and repair, and eventually after many years pieces of equipment need to be replaced. This is especially true of microscopes, which need to be replaced every 15-20 years. The microscopes in NS-235 and NS-243 are almost 20 years old and should have been replaced years ago. They are no longer able to meet the instructional needs they are intended for. We have repaired them each summer to extend their use but they are no longer worth trying to repair. To complete this goal we will need new microscopes for these two lab classrooms.

**Outcome(s) expected (qualitative/quantitative)**

The microscopes used in NS-235 are used by biology majors and the microscopes used in NS-243 are used by pre-allied health students. While high quality microscopes are required in each of these courses, the microscopes in these two lab classrooms are the oldest and poorest quality microscopes in the Biology Department. These microscopes are actually old microscopes used in Human Anatomy, and that were handed down to Biology 200 and 211 when the NS building opened.

**How does this goal align with your department mission statement, the college strategic plan, and /or Guided Pathways?**

This goal aligns with the college's strategic plan of pursuing excellence in teaching, and it aligns with the department's mission statement of providing hands-on learning experiences for students.



**Expected Goal Completion Date**

8/1/2021

## 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?**

Yes

***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.***

### REQUEST FOR ADDITIONAL FULL-TIME FACULTY

**Faculty Request 1****Title of Full-Time Faculty position you are requesting**

Anatomy (Biology 210) Instructor

**How will this faculty position help meet district (Guided Pathways, Strategic Enrollment Management etc.), department and/or discipline goals?**

Biology 210 (Anatomy) is a key course in our Pre-Allied Health Program. We offer 16 sections of Biology 210 each semester, serving over 500 students. Four of these sections are taught by full-time faculty and 12 sections of Biology 210 are taught by part-time instructors. We had three full-time instructors teaching Biology 210, and one (Carey Carpenter) is retiring after the Fall 2020 semester. We were approved to hire a new Biology 210 instructor in 2019, but unfortunately the final candidate was rejected by President Blake. Since then we have lost one full-time instructor to retirement, so our need for full-time Biology 210 instructorss is even greater now than it previously was in 2019.

**Is there a scarcity of qualified Part-Time Faculty (for example: Specialized degree/experience, emerging/rapidly changing technology, high demand)**

Yes. Because we offer so many sections of Anatomy (Biology 210), as do other local colleges, it is very difficult to find enough part-time instructors qualified to teach this course. Because the demand for Biology 210 is so high we are often asked to add additional sections, which is often not possible due to the difficulty of finding qualified part-time instructors.

**Are you requesting this position for accreditation, regulatory, legislative, health and safety requirements? Please explain.**

No

**Utilizing your PRP data, please summarize the discipline productivity, efficiency, and any regional career education needs for this discipline.**

The WSCH per FETF for Biology 201 in Fall 2019 was 531.

**Is your department affected by faculty on reassigned time. If so, please discuss.**

No.

## **Faculty Request 2**

**Title of Full-Time Faculty position you are requesting**

Anatomy (Biology 210) / Physiology (Biology 211) Instructor

**How will this faculty position help meet district (Guided Pathways, Strategic Enrollment Management etc.), department and/or discipline goals?**

Biology 210 (Anatomy) and Biology 211 (Physiology) are key courses in our Pre-Allied Health Program. As mentioned for Faculty Request 1 (above) we offer 16 sections of Anatomy (Biology 210) each semester, serving over 500 students. Four of those sections are taught by full-time faculty and 12 sections of Biology 210 are taught by part-time instructors. We had three full-time instructors teaching Anatomy, and one (Carey Carpenter) is retiring after the Fall 2020 semester.

We offer nine sections of Biology 211 (Physiology) each semester, serving over 270 students, and 6 of those 9 sections are taught by part-time instructors.

We would request hiring even more full-time Biology 210 and 211 instructors if we felt this request would be approved by the college.

**Is there a scarcity of qualified Part-Time Faculty (for example: Specialized degree/experience, emerging/rapidly changing technology, high demand)**

Yes. Because we offer so many sections of Anatomy (Biology 210) and Physiology (Biology 211), as do other local colleges, it is very difficult finding enough part-time instructors qualified to teach this course. Because the demand for Biology 210 and Biology 211 is so high we are often asked to add more sections of these courses, which is often not possible due to the difficulty of finding qualified adjuncts.

**Are you requesting this position for accreditation, regulatory, legislative, health and safety requirements? Please explain.**

No

**Utilizing your PRP data, please summarize the discipline productivity, efficiency, and any regional career education needs for this discipline.**

The WSCH per FETF for Biology 201 in Fall 2019 was 531. The WSCH per FETF for Biology 201 in Fall 2019 was 516.

**Is your department affected by faculty on reassigned time. If so, please discuss.**

Beginning Spring 2021 Richard Albistegui-Dubois will be the Biology Chairperson. Because Richard teaches Biology 211 (Physiology), his reassigned time will reduce even further the percent of Biology 211 sections taught by full-time instructors.

**In the last ten years, what is the net change in number of Staff in the department? (loss vs. gain)**

Over the past 10 years the net change in the number of faculty is a net loss of one, and will decrease to a new loss of two at the end of the Fall 2020 semester as a result of Professor Carey Carpenter retiring. Magnifying this loss of full-time instructors is the fact that the number of sections of courses we now offer has nearly doubled over the past ten years, as a result of increased demand and the opening of the NEC and SEC. The WSCH per FETF for Biology in Fall 2019 was 557. Our part-time FTEF is 24.42 Fall 2019 and our full-time FETF was 13.40 in the Fall 2019, which will now decrease even more as a result of Carey Carpenter retiring Fall 2020.

**Are you requesting new Classified, CAST or AA positions?**

Yes

## **REQUEST FOR ADDITIONAL CLASSIFIED, CAST, AA**

**Staff, CAST, AA request 1**

**Title of position**

ADA

**Is this request for a full-time or part-time position?**

Part Time

**Staff, CAST, AA request 2****How does the position fill a critical need for current, future, or critical operations? e.g. accreditation, health and safety, regulatory, legal mandates, institutional priorities, program trend analyses of growth/stability** Untitled

Biology is a large Department and we lost our ADA to retirement in May 2020. In response the MSE Division has assigned two ADAs (from Mathematics and from Computer Science) to help a little with some of the duties of the Biology ADA. This arrangement is causing stress in the two ADAs and it has been stressful for the chairperson as well. Because chairpersons cycle through and ADAs don't, ADAs are able to provide expertise and continuity for budgets, schedules, classrooms, educational centers, part-time instructors, PeopleSoft, Facilities, IS, Instructional Office, etc. The loss of this expertise and continuity results in mistakes, inefficiencies, frustrations and fatigue. The two ADAs that are helping Biology are rightfully focused on the Departments they have been assigned to for many years, where they continue to provide expertise and continuity for their Departments. To no fault of their own, they have no interest in developing that expertise and continuity for the Biology Department. They basically have the responsibility of entering schedules into PeopleSoft. The loss of that continuity and expertise will continue to be a burden on Biology chairs. Not to mention the burden it places on the ADAs from Math and Computer Science who have little time to devote to the Biology Department, and for which they know so little. A new ADA, even a part-time ADA, assigned to Biology would provide the expertise and continuity that other Departments on campus benefit from.

**Does the position assist in establishing more efficient District Operations through either of the following: reorganization/restructuring OR use of technology?**

If the current situation described above, of having ADAs from Math and Computer Science help the Biology Department, then the addition of a Biology ADA would significantly improve this problematic and hopefully temporary reorganizational plan. The ADAs from Math and Computer Science help enter schedules into PeopleSoft, but they do nothing to help with the loss of continuity, expertise and support as described above. In addition, the two ADAs being asked to help the Biology Department are now under great stress, which could eventually impact other Departments besides Biology in the MSE Division. I'm sure the individuals reading this PRP have support staff and understand the importance of having support staff devoted to their department.

In addition, we have 15 full-time faculty and almost 50 part-time faculty. Our ADA played a central role in keeping track of the individual situations related to each faculty member, including health issues, previous problems, courses each can and can't teach, specific needs (e.g. can only teach evenings or at SEC), etc. In addition, the Biology Department budgets are fairly complex and the ADA was excellent at tracking budgets, moving money between budgets, anticipating shortfalls and knowing what is normal and what is not normal. A rotating chair does not develop the understanding the ADA has for faculty and for budgets, nor does the chair have the time to learn and monitor these in detail, given all the other chair responsibilities.

**Is there funding that can help support the position outside of general funds?**

No

**Describe how this position helps implement or support your three-year PRP plan.**

The implementation of our three-year PRP plan will require coordinated efforts between faculty, support staff and other departments on campus, the timely and proper responses to past, present and future issues, the efficient use of resources, the planning and monitoring of budgets and knowing and properly responding to policies, procedures, contacts, deadlines and issues. An ADA is a central figure in all of these Department needs, and provides the expertise and continuity that rotating chairs do not develop, which results in unnecessary work, frustration, mistakes and inefficiencies.

**Strategic Plan 2022 Objective**

1:3

1:4

1:5

**If the position is not approved, what is your plan?**

For the reasons stated above there is no good plan associated with the loss of an ADA. This would be like asking busy restaurant workers what is their plan if the only cook retires and they can't hire a new cook? They only plan is we would have no choice but to do the best we can. If a Biology ADA is rejected, the two ADAs helping Biology would continue to be stressed and the Biology chair would continue to be frustrated and fatigued, and we would likely experience more mistakes, more lost opportunities and less efficient responses to issues as they arise. COVID-19 has exaggerated the issues related to the loss of our ADA. So while it would be nice now to have a full-time ADA, we feel a part-time ADA would be sufficient in the future.

**Title of position**

Hourly Student Workers

**Is this request for a full-time or part-time position?**

Full Time

**How does the position fill a critical need for current, future, or critical operations? e.g. accreditation, health and safety, regulatory, legal mandates, institutional priorities, program trend analyses of growth/stability** Untitled

The Biology Department has always relied on hourly student workers to help with extensive laboratory preparation for our nine sections of Microbiology (Biol 212) and for helping with the laboratory preparation and clean up for about 20 other laboratory sections in the Biology Department. During the Spring 2020 semester when the college eliminated most of the hourly student workers, Biology was allowed to continue using hourly student workers due to our dependence of these students to meet the needs of the laboratory courses we offer.

Our budgets have traditionally included funds for hourly student workers. If our budgets were to roll over than this request is not necessary. However, if the college makes changes to our student hourly worker budget than this request would be necessary.

**Does the position assist in establishing more efficient District Operations through either of the following: reorganization/restructuring OR use of technology?**

No, this request is just to continue with our normal operating procedures.

**Is there funding that can help support the position outside of general funds?**

No

**Describe how this position helps implement or support your three-year PRP plan.**

In order for the Biology Department to continue offering its laboratory courses we will require student hourly workers.

**Strategic Plan 2022 Objective**

1:3

2:1

**If the position is not approved, what is your plan?**

If we were to lose student hourly workers our plan would have to entail reducing the number of sections of Microbiology (Biology 212).

**PART 2: BUDGET REVIEW**

Review your Budget/Expenditure reports for 2018, 2019, 2020. 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?**

Yes

**What budget considerations would you like your dean/supervisor to be aware of or to consider? Please be as specific as possible. For example, if you need an increase in the 40000 account and a decrease in the 23000 account, describe what increase your department needs, how much, and a description of why the department needs the adjustment.**

My inability as Chair to provide a knowledgeable response to this question is a good example of problems related to losing our ADA. Our ADA had a 15 year history of Biology budgets, and could answer any budget-related question related to our Department. I on the other hand know little about the detailed history of our budgets, and due to COVID-19 I've had no time to devote to learning our budgets.

Based on my incomplete knowledge when the SEC opened our Department expenses for offering courses at the SEC were initially covered by what I believe were lottery funds. Our ADA told me last March that these funds were taken away from our budget last year and not replaced. In response, I had conversations about this with Dean Roe, and was told that VP Jack Kahn responded that when our budget was exhausted before the end of the fiscal year that the college would transfer money to our account to make up the shortfall. Then COVID-19 shut down the campus, immediately reducing our classroom expenses, and our budgets were therefore never exhausted as anticipated. So, while this is not currently an issue, it will return as an issue once we return to F2F instruction and our laboratory expenses return to normal.

In addition to the loss of funding for SEC, we have consistently added new sections of courses over the past 10 years and the expense related to offering new sections has never been equally compensated in our budgets. While some of our lab courses are relatively inexpensive to run, some such as Microbiology are relatively expensive to run, so adding new sections requires budget increases to cover these expenses.

So we would like to Dean Menchaca to consider adjusting our budgets to account for expenses at SEC and for the addition of sections which were not covered by budget increases.

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

This year the College is implementing two new processes related to resource needs coming from the PRP process.

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

**Do you have resource needs that require physical space or modification to physical space?**

Yes

### Facilities Requests

#### Facility Request 1

**What are you requesting?**

Completion of a cadaver storage room for SEC.

**What discipline PRP plan goal/objective does this request align with?**

Cadavers are used in Human Anatomy (Biology 210). Because there is not a cadaver storage room at the SEC we have been unable to teach at sec using cadavers. Without a cadaver we are forced in Biology 210 to use cats for dissection. Cats are significantly more expensive than cadavers and are a relatively poor dissection substitute in a Human Anatomy course. The reason cats are more expensive than cadavers is because we need about 16 cats for each of our 16 sections of Bio 210 each semester. One cadaver serves about 10 sections of Biology 210 for several years. In addition, cats for dissection are getting more difficult to acquire and the price has increased significantly over the years.

**What Strategic Plan 2022 Goal/Objective does this request align with?**

3:4

3:5

5:2

**Provide a detailed description of the facilities item or space requested. What is it, and why do you need it? Please be as descriptive as possible. Include in your description how the requested item aligns with your discipline's PRP goals, analysis of PRP data, SLO/SAOs.**

The cadaver storage room at SEC was approved last Spring 2020 and Facilities was working on the plan to remodel the storage room next to the Bio 210 classroom (SEC-318) into a cadaver storage room, however these plans were suspended when COVID-19 caused the campus to close down. So this request is more of a reminder to Facilities to proceed with this plan once COVID-19 restrictions are lifted and they have permission to work in the SEC building.

**Is there an associated cost with this request?**

Yes

**Will you fund the request through your budget or other sources?**

One Time Request, Facilities should know the account that was approved to support the remodel of the storage room next to SEC-318.

**What impacts will this request have on the facilities/institution (e.g., water/electrical/ADA compliance)?**

Facilities will have to make some changes to the HVAC system in the storage room. Facilities is aware of the changes that need to be made to the cadaver storage room.

## PART 4: 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?**

Yes

### Requests

#### Item 1

**What are you requesting?**

Teaching Microscopes for Biology 210 (Anatomy)

**Estimated Amount of Request.**

\$17,300.00

**Will you accept partial funding?**

No

**Budget Category**

Supplies

**What PRP plan goal/objective does this request align with?**

Goal 6

**What Strategic Plan 2022 Goal/Objective does this request align with?**

1:3

**Provide a detailed description of the item requested. What is it, and why do you need it? Please be as descriptive as possible. Include in your description how the requested item aligns with your discipline's PRP goals, analysis of PRP data, SLO/SAOs.**

Teaching microscopes and cameras for Anatomy (Biology 210) to be used NS-324, NS-316 and SEC-31. These are needed to teach histology, so instructors can project microscopic anatomical structures to students and to photograph these images digitally for students to have access to in preparation for examinations.

**Please upload a copy of the quote, if available.**



QT-U1295668.pdf  
33.89 KB



#### Item 2

**What are you requesting?**

Student Microscopes for Biology 200 (NS-235) and Biology 211 (NS-243)

**Estimated Amount of Request.**

\$96,202.00

**Will you accept partial funding?**

No

**Budget Category**

Supplies

**What PRP plan goal/objective does this request align with?**

Goal 6

**What Strategic Plan 2022 Goal/Objective does this request align with?**

1:3

**Provide a detailed description of the item requested. What is it, and why do you need it? Please be as descriptive as possible. Include in your description how the requested item aligns with your discipline's PRP goals, analysis of PRP data, SLO/SAOs.**

Microscopes are an important laboratory tool used by all students in Biology 200 and Biology 211. The current microscopes used in these two lab classrooms are over 20 years old and are no longer worth fixing, and have become basically useless. All classroom microscopes need to eventually be replaced, and that time is well past due for the microscopes in Biology 200 (NS-235) and Biology 211 (NS-243).

**Please upload a copy of the quote, if available.**



QT-U1296721 Palomar College King CX23 LED Biology Microscopes - With Oil Objectives.pdf  
30.01 KB



### Item 3

**What are you requesting?**

Cadavers for Biology 210 (Human Anatomy).

**Estimated Amount of Request.**

\$12,980.00

**Will you accept partial funding?**

No

**Budget Category**

Supplies

**What PRP plan goal/objective does this request align with?**

Goal 6

**What Strategic Plan 2022 Goal/Objective does this request align with?**

1:3

**Provide a detailed description of the item requested. What is it, and why do you need it? Please be as descriptive as possible. Include in your description how the requested item aligns with your discipline's PRP goals, analysis of PRP data, SLO/SAOs.**

Biology 210 uses cadavers, and cadavers need to be renewed every 3 years. We currently need two cadavers for Biology 210 at the San Marcos campus and one cadaver for the SEC. Once the lab space is available at the NEC we will need a cadaver there as well. So while we currently need 3 cadavers, we anticipate needing 4 over the next 3 years.

**Please upload a copy of the quote, if available.**



Palomar Cadaver Quote.xlsm  
53.39 KB



**I confirm that the Program Review is complete and ready to be submitted.**

Yes

**Enter your email address to receive a copy of the PRP to keep for your records.**

jgilardi@palomar.edu

## Review

### Chair Review



**Chair Comments**

Hi Patricia

I had Richard Albistegui-Dubois and Beth Pearson help me write the PRP. So if you see different writing styles on different sections, that is why.

Let me know if you have any questions.

Jim

**Chair Name**

Jim Gilardi

**Chair Sign Date**

10/29/2020

**Dean Review****Strengths and successes of the discipline as evidenced by the data and analysis:**

The biology department has made remarkable progress in increasing the number of AS-T degrees in the last three years. This can be attributed to the impressive collaborative nature of the department and its focus on increasing student success. Faculty have put the success of students at the forefront of their efforts by participating in professional development activities that encourage inclusivity by regularly evaluating curriculum with the intent of decreasing attrition rates. Few of the courses have decreased success rates but the department has well evaluated the causes and has a strong plan to identify and address any deficiencies. The department has a naturally intuitive ability to identify potential causes for gaps within disproportionately impacted students and has made closing these gaps a priority. Equally as significant is the departments willingness to go above and beyond their instructional responsibilities by systematically working with students to increase awareness of degrees thereby, increasing the number of student who apply and receive degrees. This is particularly impressive when considering the fact that STEM student traditionally transfer without degrees due to the high unit requirements of the disciplines.

**Areas of Concern, if any:**

The department was unable to participate in a data driven decision process through the assessment of SLO's but has a strong plan to evaluate and revise SLO's on a programatic level to provide better guidance to the department and encourage continued unity within the faculty.

**Recommendations for improvement:**

I have no recommendations for improvement but would like the department to consider expanding their transfer efforts by collaborating with the Title V STEM counselor to further increase awareness and develop a specialized support system through counseling.

**Dean Name**

Patricia Menchaca

**Dean Sign Date**

11/3/2020

**IPC Review**

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

The following comments are provided by IPC member April Cunningham:

It's great to hear that the department is reviewing their program outcomes to better represent their goals for students' learning. This will benefit faculty and students in the program and will be of great value in the program mapper, where prospective students will see what they could expect to learn if they choose a Biology program of study.

The program has shown great success with recent efforts to encourage more students in their capstone class to file for their degree. This could be an excellent model to share with other programs that are interested in capturing more completions among students who have fulfilled all of the requirements but are not choosing to take the final step of filing for their degree. The department's standards and stretch goals for completion are well-grounded and they appear to be on track for significant success with their new programs.

In areas where the department identified gaps in success rates that correlate to student characteristics, the department generally did an excellent job analyzing the reasons as well as proposing ways to close the gap. The only exception was with the success gap related to students' age, which is noted below as a recommendation for improving the report.

The following comments are provided by IPC member Kelly Falcone:

I am so impressed with the departments intentional increase in completions from 9 in 2018 to 47 in 2020 by passing out the AST graduation application form in their terminal class- what a great strategy! This strategy should be shared with all departments.

The department is taking the time to really think about their program SLO's from a perspective of commonality among courses, to a perspective of what the students need upon completion. They are utilizing backwards design to start with the end in mind and build the courses outcomes to achieve the intended outcomes of completion. I look forward to hearing about their experience switching the perspective, I think this strategy could be good for other departments to utilize as well.

By reviewing their success/retention data they were able to evaluate a recent decision to remove prerequisites at the request of nursing that have negatively impacted general students success. This is a really good example of utilizing data to understand the impact of changes to programs.

The department has thoughtful realistic goals. I really like that they included a goal focused on increasing interaction between instructor-student to increase student success, it is great to see a goal focused on what we do in the classroom and not just large departmental/program goals.

**Areas of Concern, if any:**

The following comments are provided by IPC member April Cunningham:

The department is still early in the process of determining how to assess program learning outcomes. They may benefit from reaching out to SLO coordinators and/or faculty leaders in Biology programs at other colleges who could share examples from their experience.

The Department has identified success rates in BIOL 210 as an area for concern and noted that a curriculum change that removed the BIOL 102 prerequisite has contributed to the low success rates. If student preparation is identified as an issue for students who want to take BIOL 210 on their way to completing an allied health program, what might the Department be able to do to build supports into this rigorous course.

The following comments are provided by IPC member Kelly Falcone:

The department has addressed gaps and opportunities and looks to be focused on addressing the challenges.

The only area of concern I noticed was in relation to not being able to answer the budget question. As the chair noted, understanding budgets is difficult especially with rotation chairs and not much fiscal training. I believe this should be a concern of the district to provide more training and staffing to help maintain budgets.

**Recommendations for improvement:**

The following comments are provided by IPC member April Cunningham:

Since success rates for students 24 years old and younger are falling below the department standard, the department should propose an answer to the question What do you need to help close the gap?

Although the PRP form does not list them as a Work Based Learning (WBL) approach, inviting guest speakers who work in industries related to your courses is generally considered to be a low-threshold form of WBL. If hearing from professionals is something that is or could be incorporated somewhat systematically into the program that may be something worth mentioning in the WBL section of the report.

The following comments are provided by IPC member Kelly Falcone:

The report mentioned "To really learn science, one has to do science. For this reason we strongly encourage students to apply for summer internships that are offered by hundreds of colleges each summer." I am curious whether these internships are provided through Palomar College or if the department shares the info for students to apply outside of our Palomar processes? This question is mostly about whether or not the college is tracking the number of students participating, I believe this is something the Work Based Learning coordinators were trying to track.

**IPC Reviewer(s)**

April Cunningham and Kelly Falcone

**IPC Review Date**

11/23/2020

**Vice President Review****Strengths and successes of the discipline as evidenced by the data and analysis:**

recognition of need to recreate SLOs and develop PLOs; increased # of completions; exploration of flipped classroom models as an outgrowth of remote instruction; positive instructional changes made as a result of SLO assessments; collaboration with NURS, MATH, CHEM, PHYS, NUTR

**Areas of Concern, if any:**

1. employer expectations
2. concerns about embedding course assessments; not sure if this refers to embedding within Canvas -- if that is not the case, I recommend learning more about this feature to provide easily accessed, regular assessments where possible.
3. focusing SLOs on instruction
4. programs with lower than 7 completions in past 5 years
5. why choose college standard for success? how will this tie into your SLOs, hopefully SLOs that will include trying to identify points of struggle within the curriculum for students
6. You wrote: The biggest finding is that it is very difficult to create a singular assessment that fairly evaluates student success across multiple classes taught by multiple instructors. -- perhaps that's something that your SLOs could help to address: why students with different instructors might have such vastly different success rates on the same curriculum point -- could lead to good discussions on best practices, e.g.
7. lack of WBL
8. lack of specific, measurable outcomes for goals
9. keeping equipment up-to-date

**Recommendations for improvement:**

1. development of biostatistics course -- please be sure to include MATH, PSYC/SOC, BUS and Articulation Officer in the discussion so that all are aware and able to provide useful input
2. meet with Nichol Roe to discuss WBL and Career Continuum; you may be surprised at what may be of value to your students, even if they are not hopping right into a career -- many could use the exposure to the working world in an area related to their intended field and even begin to build relationships with employers. Conversations here may also impact your discussion re: employer expectations and PLOs.
3. work with dean to track need for updated equipment purchase (sound like a 10-year plan?) and to identify potential funding sources
4. investigate use of Canvas in embedding SLO assessment
5. discuss deactivation of low-completing programs with dean

**Vice President Name**

Shayla Sivert

**Vice President Sign Date**

1/2/2021