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Entry #: 48

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OVERVIEW OF PROGRAM REVIEW AND PLANNING FOR INSTRUCTIONAL PROGRAMS

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

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

BASIC PROGRAM INFORMATION

Academic Year
2021-2022

Are you completing a comprehensive or annual PRP?
Comprehensive

Division Name
Mathematics, Science and Engineering

Department Name
Earth, Space, and Environmental Sciences

Department Chair Name
Sean Figg

Discipline Name
Astronomy (ASTR)

Department Chair email
sfigg@palomar.edu

Please list the names and positions of everyone who helped to complete this document.
W. Scott Kardel (Associate Professor of Astronomy and Assistant Planetarium Director)
Mark Lane (Professor of Astronomy & Planetarium Director)

Website address for your discipline
https://www2.palomar.edu/pages/astronomy/

Discipline Mission statement
The mission of the Astronomy Program at Palomar College is to educate our students in the fundamental science of astronomy as a way to understand our universe. We achieve this mission by providing high-quality educational opportunities in astronomy for a diverse student population who wish to achieve general education science credit, earn a certificate of achievement, or to fulfill transfer requirements for a degree in astronomy at California universities. As one of the core STEM disciplines, our astronomy courses promote the understanding of basic science and physical processes to create a science-literate society and encourage student participation in STEM disciplines and careers.

Describe how your mission statement aligns with and contributes to the College's Vision and Mission.
Astronomy provides quality programs and robust course offerings to support students who are pursuing transfer-readiness, general education, career and lifelong education.

(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.
Certificate of Achievement (CA) - Astronomy

BASIC PROGRAM NFORMATION: FACULTY AND STAFFING RESOURCES

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

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

1) **Permanent Faculty and Staff Count**

2) **FTEF LINK**

How many permanent or full-time faculty support your discipline (program)?
2

For this past fall semester, what was your Full-time FTEF assigned to teach classes?
1.8

For this past fall semester, what was your Part-time FTEF assigned to teach classes?
0

List the classified and other permanent staff positions that support this discipline.
ADA 6.67%; Instructional Assistant IV 10%

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

PROGRAM INFORMATION

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

PROGRAM LEARNING OUTCOMES

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

- **Program** = Leads to a degree or certificate
- **Discipline** = A group of courses within a discipline

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

How well do your program's learning outcomes communicate the scope and depth of the degree/certificate offered?
We believe that our program learning outcomes are comprehensive and communicate the scope and depths of our transfer courses and certificates. They are developed in consultation with our counterparts at key transfer institutions for our students (i.e. SDSU, CSUSM.

How do they align with employer and transfer expectations?
The program learning outcomes were designed with the transfer student in mind. We have had numerous students the last several years that have transferred into astronomy programs at 4-year schools across the region.

Describe your program's plan for assessing program learning outcomes.
We plan to assess our program learning outcomes over a 3-year cycle by reviewing student performance in our key transfer classes. Changes in learning assessments are considered and made if they are not effective in summarizing outcomes.

Summarize the major findings of your program outcomes assessments.
No current results are available. Assessment of program learning outcomes has been difficult to accomplish due to a number of factors.

A program assessment will be conducted in Spring 2022 for students majoring in astronomy that are enrolled in Astronomy 210.

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

- Associate Degree GE Requirements
- CSU GE Requirements
- IGETC Requirements

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

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

How do the courses in your discipline support GE/ILOs? In your response, please specify which GE/ILO(s) your discipline supports. You should refer to the GE/ILOs your program outcomes are mapped to in Nuventive.
The SLOs in astronomy support a number of the GE/LOIs. Most classes connect across several GE/ILOs.

1. Communication 1A (Written): several SLOs such as the evolutionary sequence of stars through birth, life, and death and the planetary bodies.

2. Computation 2A (Quantitative literacy & 2B (Inquiry and Analysis): Astronomy lab makes extensive use of computation literacy by requiring students to reason and solve quantitative problems related to real problems in astronomy.

3. Creative, Critical, and Analytical Thinking 3A (Critical thinking): Apply, analyze, synthesize, and/or evaluate information as a guide to belief and action. Students must use these skills when evaluating the relative age of a planetary surface or when applying knowledge to predict the next stage in the evolution of a star.

4. Creative, Critical, and Analytical Thinking 3B (Information Literacy): Applies to most activities in Astronomy lab and in many aspects of the lecture classes.

5. Foundation of knowledge: Every astronomy class reinforces the foundation of astronomical knowledge.

Summarize the major findings from your course outcomes assessments that are related to the GE/ILOsducation/Institutional Learning Outcomes that your discipline supports. You should refer to the GE/ILOs your course outcomes are mapped to in Nuventive.
The SLOs for the astronomy support most of Palomar's GE/ILOs. Many SLOs connect across several GE/ILOs. Nearly every SLO relates to verbal and visual communication along with mathematical analysis and foundational knowledge. Being able to understand and explain introductory to moderate astronomical concepts is the primary goal of the program.

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, you will reflect upon the number of completions students earned for EACH degree/certificate you offer. As required for accreditation, you are also asked to set a standard which represents the lowest acceptable number of completions and a stretch goal for increasing the number of awards.

Link to **Program: Completions**

Copy and paste five years of completion data for each of your discipline's degrees and certificates.
2017-18 1 AA / 2 Certificate of Achievement

2018-19 2 AA / 1 Certificate of Achievement

2019-20 1 AA / 1 Certificate of Achievement

Only three years of data were posted on Sharepoint.

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

What factors have influenced your completion trends?
With only three years of data available we continue to have small numbers of completions in the AS degree which was discontinued in the 2017-18 school year. The Astronomy CA has remained at 1 or 2 students per year. Essentially no one in the real world requires or values an Astronomy CA for employment or transfer, so few students, even those who transfer to four-year schools as astronomy majors, actually apply for the CA.

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?
Each year we will work with the STEM Center to identify students who are planning on transferring to a four-year school as an astronomy major and encourage them to apply for the Astronomy CA.

Our accrediting body, ACCJC, and the Federal Department of Education requires that colleges establish standards and goals for student success and completion.

A program-set standard for completion represents the lowest number of program completion you deem acceptable for your program. 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.

What is your program standard for program completion?
2

Why did you choose this standard?
Students who become astronomers earn advanced degrees in the subject. Most students at the community college level who are looking to earn a degree in astronomy will transfer to the university level without earning an AS degree or CA. Our subject discipline mostly serves students who are looking to satisfy their GE requirement in they physical sciences and are not looking to become astronomers.

However, there are a few students who are interested in having some sort of official document of accomplishment in astronomy (for a variety of reasons) and so we offer the CA. We feel that the current rate of 2 per year is reasonable based on these factors.

A program stretch goal for completions is the number of completions you aspire to award for each program in your discipline.

To determine your stretch goal, consider the number of annual completions you typically award over time, then consider strategies or efforts you are making to increase completions in your program. Then identify the NUMBER you want to set as your goal.

What is your stretch goal for program completion?
3

How did you decide upon your stretch goal?
Based on our history of only a few astronomy majors per year, increasing our completions by 1 student per year seems like a desirable stretch goal at this time.

ENROLLMENT AND EFFICIENCY TRENDS

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

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

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

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

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

This information can be found by looking at enrollment efficiencies.

Link to Program: Enrollment Trends

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

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

Were these trends expected? Please explain.
Astronomy remains a popular subject for students to study. Enrollment numbers have increased every semester except for Fall 2017 when Professor Lane was on sabbatical. Fill rates in 2019 were higher (89.17%) than in 2015 and the Fall 2019 WSCH/FTEF was 816, the highest it has been over the period surveyed.

Program Information Summary

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

What factors have contributed to the success of your program(s)? Describe how they have contributed.
Prior to the pandemic we began to increase our outreach to potential students with displays in the NS Building and Palomar College Planetarium. Additionally, we've been incorporating the planetarium into some of our class lessons and have begun having nighttime "star party" observing sessions with students. We know from talking to students that these efforts have somewhat worked since they will tell us that they became curious about our program after seing these displays, or from a recent visit to the planetarium.

What factors have presented challenges for your program(s)? Describe the impact of these challenges.
Our outreach efforts have been negatively impacted by COVID. For astronomy, much of our student outreach requires attractive activities such as star parties and planetarium shows. However, due to the pandemic, these activities have stopped for the time being.

The small number of Astronomy CA completions will be difficult to grow. It is difficult to track astronomy majors, especially when so many of the Astronomy CA courses are taught in Math and Physics.

COURSE INFORMATION

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

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

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

COURSE SUCCESS AND RETENTION

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

Program-set standards for course success rates represent the lowest success rate deemed acceptable by your discipline. In other words, if you were to notice a drop below the rate, you would seek further information to examine why the drop occurred and strategies to address the rate. The College's institution-set standard for course success rates is 70%

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

Link to Course Information

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

What is your program's standard for Discipline COURSE Success Rate?
50.0%

Why did you choose this standard?
Astronomy can be a difficult subject for many students. It requires students to have some K-12 science experience that many students are currently lacking. When choosing a general education course to take to fulfill their GE requirements, many choose astronomy not realizing that they will have to work harder than other non-science courses. Even with careful and patient instruction, many of these students perform at a lower level than they otherwise would in non-science courses. It is important that our astronomy program at Palomar College adheres to the standards that CSU and UC schools demand in their astronomy courses if we are to maintain articulation agreements with the university system.

One development that is becoming apparent is an increase in the number of our students who are receiving financial aid. Although this allows them access to college that they might not otherwise afford, many of these students enroll in astronomy not expecting a subject that is rigorous and challenging. To keep their financial assistance, they must be enrolled at the end of the semester but many of them stop showing up to class and effectively drop out without officially dropping the course. Many "FW"s are assigned at the end of the semester which drags down our success rate.

For these reasons it is unrealistic to expect that the astronomy discipline will meet the standard for Discipline Course Success Rate that the rest of the college holds. The data provided by the Institutional Research and Planning database shows that a 50% success rate for the astronomy discipline is a realistic goal for astronomy. At this time we are averaging around 50% and we feel that we can keep a 50% rate a reality and a norm for the discipline.

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

Was this expected? Please explain.
Our Success Rate was just 44.0% in the Fall 2015. It has gradually moved upward hitting 52% in Fall 2018 and 63.9% in Fall 2020. Some improvement was expected, but the Fall 2020 number was unexpectedly high. It was coupled with a decrease in our retention rate. It is possible that pandemic issues and drop date extensions gave more failing students a chance to drop, making the overall retention rate lower, but the success rate higher.

What is your stretch goal for course success rates?
52.0%

How did you decide upon the goal?
We hope that this increased success rate of 52% will stick after the pandemic has subsided and we can resume in person instruction and student contact. If the bump in success rate is truly for the reasons described above, then we might find that more work is necessary to get back to 52%. We believe that we can increase our course success rate further but our plan of action will take some time before results are apparent. We believe that a small increase to the existing rate is a reasonable stretch goal. If we are successful, we can increase the next stretch goal and so on.

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

Was this expected? Please explain.
Since 2015 the retention rate has gone from 91% to 94% in 2019, but fell to 88% in 2020. It is possible that pandemic related issues such as the difficulty that some students have with online instruction along with the drop date extensions, gave more failing students a reason (and extended timeline) to drop, making the overall retention rate lower, while making the success rate higher.

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

Ethnicity: Why do you think ethnicity differences exist? What do you need to help close the gap?
Our Fall 2020 success (40%) and retention rates (70%) are lowest among Black or African American students. Numbers of Black students enrolled are typically less than 10, so small number statistics come into play, but we will work to examine the root causes and work to improve.

It is well known that the ongoing pandemic has had a greater impact on people of color and we believe that this has been a factor in these results. We will know more after the pandemic is over and we return to 'normal' instruction.

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

Please share any best practice methods you use for online courses.
N/A

We've not traditionally offered online courses and comparisons between online instructions taking place during the pandemic and face-to-face instruction prior to the pandemic may not be valid.

COURSE STUDENT LEARNING OUTCOMES (SLOs)

Summarize the major findings of your course level student learning outcomes assessments.
ASTR 100 two (Moon phases and H-R Diagram) of the three course SLOs have been successfully met. All course SLOs in ASTR 105L, ASTR/GEOL 120 and ASTR 210 have been successfully met.

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?
We are interested in seeing how success rates compare pre-pandemic versus the online instruction taking place during the pandemic.

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?
The only course SLO that hasn't been successfully met is the Seasons SLO in ASTR 100. Students often come in with strong misconceptions on this topic. Instruction will be continually improved to increase student comprehension. We also believe that part of the reason that we are not having success with this SLO is that we are assessing it as one complete answer to the question. Because of this, we will re-evaluate how we assess the SLO to break down the concept into smaller components to expose what they do or don't understand.

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

PROGRAM CURRICULUM ALIGNMENT, MAPPING, SCHEDULING, & PLANNING

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

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

- The mapping and assessment of clear program outcomes that are also aligned to employer and/or transfer institution expectations.
- Engaging and applied learning experiences.
- Effective instructional practices to support students in achieving success.

What is your departmental strategy on how you schedule your courses, including the time of day you offer courses? Do you use 4-week, 8-week, or block scheduling (putting required classes near each other) to organize required classes to meet the needs of disproportionately impacted students? Please explain.
Prior to the pandemic astronomy 100 has been offered in a variety of days and times in the mornings, afternoon and evenings giving students plenty of opportunity to take this introductory course.

We try to schedule astronomy classes in typical block scheduling format so that they coordinate with other departments.

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

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 and SLO assessment?
The Planets, Moons and Comets course is offered as ASTR 120 or GEOL 120 with all instruction and SLO assessment currently being handled by Professor Kardel.

We try to schedule astronomy classes in typical block scheduling format so that they coordinate with other departments.

Are there curriculum concerns that need to be resolved in your department? What are they?
No.

Are there courses that should be added or removed from your program - please explain?
There are several legacy astronomy courses listed in the college catalog that need to be retired. These courses are from when we used to offer an AS degree in astronomy that provided options for students who needed additional units to complete the degree. Some of these courses were from a time when the administration used to be more lenient in allowing low enrollment courses to move forward. An effort is being made by the astronomy faculty to deactivate these legacy courses.

How is the potential need for program/course deactivation addressed by the department?
Full-time faculty regularly review course outlines of record as well as SLO results to determine the need for specific courses. We also consider the courses needed to earn the CA in astronomy. Any courses that are no longer offered or needed are considered for deactivation.

Are there areas you would like to expand?
We would like to offer a non credit or not-for credit option for astronomy. Years ago the college offered a series called "Lifelong Learning". We offered "Backyard Astronomy" and it was very successful until the College pulled the plug on the program. Please offer this again!

Describe any data and/or information that you have considered as part of the evaluation of your program.
Labor market data and degree/program offerings at the university level are considered when evaluating the astronomy program.

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

Is the content in the program mapper accurate?
Yes

Is the content in the catalog accurate?
Yes

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

If yes, describe your efforts. If no, what type of training or help do you need to do this work?
Unlike college courses that have a significant social component to them, increasing diversity in a science course has its challenges. But, lectures in the astronomy classes are being revised so as to include, whenever possible, examples of persons of color engaging in astronomy, or historical examples of contributions made by non-white scientists.

For example, some of the courses include examples of the contributions of notable astronomers throughout history. The astronomy professors are evaluating additional examples to include astronomical discoveries made by people of color and other ways that astronomy has been important to non-European cultures and traditionally underserved populations.

CAREER AND LABOR MARKET DATA

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

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

What kinds of careers are available for people who complete your programs (and/or transfer)? (Refer to link above) Are there any new or emerging careers? If so, how would the new or emerging careers impact your future planning?

There are few careers in astronomy in the traditional sense. Compared to other sciences, professional astronomers are few and far between.

Most astronomers need to get their PhD to be employed in the field working at a university or observatory working as an instructor or researcher. However their are also positions in public outreach at observatories and planeteria explaining astronomy to the general public.

Other related careers listed are:

25-1051.00 Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary
25-1054.00 Physics Teachers, Postsecondary
11-9121.00 Natural Sciences Managers
17-3029.01 Non-Destructive Testing Specialists

19-1021.00 Biochemists and Biophysicists
25-1051.00 Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary
25-1054.00 Physics Teachers, Postsecondary

17-3029.01 Non-Destructive Testing Specialists

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

The KSAs needed for employment in the above fields are knowledge of astronomy, physics and mathematics.
In addition to astronomy knowledge needed includes:
Physics
Mathematics

Computers and Electronics
English Language
Education and Training
Skills needed include:
Science

Active Learning
Critical Thinking
Reading Comprehension

Mathematics
Abilities needed include:
Deductive Reasoning
Inductive Reasoning
Mathematical Reasoning

Near Vision
Oral Comprehension

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

By completing courses in astronomy at Palomar College, successful students have a basic background in science and fundamental astronomical concepts that, when combined with the proper knowledge in physics and mathematics, will enable them to continue their education at other 4-year institutions. Many of these KSAs are fundamental items (English Language, Speech Clarity, Reading Comprehension) that a student learns in a variety of classes while obtaining a college degree.

The required lecture, lab exercises, writing and reading assignments should encourage students to acquire and/or enhance the KSA's listed above.

Work Based Learning

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

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

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

How do you engage with the community to keep them apprised of opportunities in your program?
Advertisement at Palomar College Planetarium (prior to the pandemic). Community outreach.

Program Goals

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

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

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

Goals

Goal 1

Brief Description
Bring the donated 24-inch telescope back to operational life

Is this a new or existing goal?
Existing

Goal Status
Ongoing

How will you complete this goal?
The telescope was donated and is sitting in storage. Meetings have been held with architects concerning preliminary design of an observatory to house the telescope. Significant financial support will be needed to build the observatory on campus and to refurbish the telescope making it operational again. We suspect that due to the financial difficulties currently being experienced by the college, we will largely be looking for public financial support through donations, fundraising, etc.

Outcome(s) expected (qualitative/quantitative)
This telescope will be an excellent improvement to our astronomy program. It will allow us to incorporate hands-on, research quality observing into our courses and it will allow us to train career-path students in astronomy in the use of a research quality telescope and supporting equipment.

Secondly, this telescope will enhance our public outreach program by allowing the public to view through the telescope on special occasions.

How does this goal align with your department mission statement, the college strategic plan, and /or Guided Pathways?
Making this telescope operational again will provide a high quality educational opportunity in astronomy.

Providing hands-on learning using a research quality telescope will increase student interest in taking astronomy classes and provide a pathway for them to be more successful in the lecture sections increasing both success rates and retention rates.

Expected Goal Completion Date
6/1/2024

Goal 2

Brief Description
Improve Black Student Success Rate

Is this a new or existing goal?
New

How will you complete this goal?
We will work to adjust course delivery to, whenever possible, to include examples of persons of color engaging in astronomy.

Some of the course includes examples of the contributions of notable astronomers throughout history. The astronomy professors are evaluating additional examples to include in the classes that would include astronomical discoveries made by people of color and other ways that astronomy has been important to traditionally under served populations.

Further we will try to break through any cultural barriers that may exist that are getting in the way of success for our Black students.

Outcome(s) expected (qualitative/quantitative)
Our Fall 2020 success (40%) and retention rates (70%) were lowest among Black or African American students. We are working to gain at least a 10% increase in both success and retention rates for our Black students.

How does this goal align with your department mission statement, the college strategic plan, and /or Guided Pathways?
The mission of the Astronomy Program at Palomar College is to educate our students in the fundamental science of astronomy as a way to understand our universe. The goal applies to all students.

Expected Goal Completion Date
1/31/2023

RESOURCES

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

The section is organized into the following four parts:

PART 1: Staffing Needs (Faculty and Additional Staff)

PART 2: Budget Review

PART 3: Technology and Facilities Needs

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

PART 1: STAFFING NEEDS

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

Are you requesting additional full-time faculty?
No

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

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

PART 2: BUDGET REVIEW

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

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

How to Request the Available Budget Report

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

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

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

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

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

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

PART 3: TECHNOLOGY AND FACILITIES NEEDS

Will you be requesting any technology (hardware/software) this upcoming year?
Yes

Technology Request

Technology Request 1

What are you requesting?
Hardware and software for the donated 24-inch telescope revival

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.
The donated 24-inch telescope is a wonderful resource that will change the way we educate our astronomy students. However, the telescope has been in storage for more than a decade and will need upgraded hardware and software to bring it back to operational status.

Estimated Amount of Request.
$25,000.00

If any, list ongoing costs for the technology (licences, support, maintenance, etc.)

Do you already have a budget for this request, or will you need additional funds?
No

What PRP plan goal/objective does this request align with?
Goal #1 - Bring the donated 24-inch telescope back to operational life

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

1:1 2:2 2:3 3:4

If you have multiple requests for technology and had to prioritize, what number would give this? (1 = Highest)
1

Do you think that your request for technology will require changes to a facility?
Yes

Note about technology requests:

All technology requests will now go through a review process before prioritization.

- *Your dean/director will send you a Technology Request Checklist (aka Technology Proposal Analysis Checklist).*
  - *You must complete this checklist and return it to your dean no later than 11/19/2021.*
  - *Once the dean approves the form and the request, the dean will send the document to the Technology Review Committee to determine IS resources needed, any integration issues, and/or potential overlap with existing technology.*
  - *The results of the review will be sent to the dean and chair with feedback.*
  - *The dean will determine whether or not the request moves forward for prioritization and/or implementation.*
    - *Requests for one-time funding will move forward for prioritization.*
    - *Requests that use funding from your department budget may move forward for purchase.*

Part 4: Facilities Requests

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

Facilities Requests

Facility Request 1

What are you requesting?
New campus observatory for donated 24-inch telescope

What discipline PRP plan goal/objective does this request align with?
Goal #1

What Strategic Plan 2022 Goal:Objective does this request align with?
1:1 2:2 2:3 3:4

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.
This telescope donation will be an attractive component to our astronomy program that will increase student engagement and student learning, and will increase enrollment in our program. It will also raise our standing as one of the only colleges in San Diego to offer such a valuable learning experience. When not being used for student research, the telescope can be used as part of our public observing sessions (called star parties) where we can invite residents in the area to come to our campus and view the cosmos through a large telescope. This will bring excitement to the community and will contribute to our standing as a place where the community can come and learn about astronomy at their local community college.

The donated telescope is a valuable aquisition that we would have never otherwise been able to afford (it's original cost was nearly $162,000 in 2002). However, this astronomical instrument needs an observatory as its permanent home on campus. We have been working with the Facilities Department to find a location on campus and working with the campus architect to design a new observatory. At the time of this report, we do not have an estimated cost for this new observatory, but we expect that it will be several hundred thousand dollars. We understand that this is a big ticket item, especially during troubled financial times for the college. We will work with the college to embark in a fundraising campaign to bring in as many community dollars as possible. However, we feel that some matching funds by the college will help bring this telescope to operation once again.

Is there an associated cost with this request?
Yes

Will you fund the request through your budget or other sources?
One Time Request

What impacts will this request have on the facilities/institution (e.g.,water/electrical/ADA compliance)?
The Facilities Department has worked with us to find a location on campus for the observatory. The location chosen will tie into existing campus infrastructure and so should have only a minimal impact overall.

PART 5: OTHER ONE-TIME NEEDS

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

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

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

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