



# Program Review and Planning

## 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**  
2018-2019

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

**Department Name**  
Physics and Engineering

**Discipline Name**  
Physics (PHYS)

**Department Chair Name**  
Daniel Finkenthal

**Division Name**  
Mathematics, Science and Engineering

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

#### **Discipline Mission statement**

The Department has not developed an agreed on mission statement for this discipline. This will be a goal for the coming year after we have hired several new faculty. A suitable stand-in is presented here:

Physics lies at the core of all scientific and technical disciplines. Our mission is to provide students with an outstanding learning experience in which they develop strong analytical, quantitative, and problem solving skills with a deep appreciation of the role physics plays in technical innovations and understanding the world we live in. We strive to provide an engaging teaching and learning environment for students of diverse origins, experiences, needs, abilities, and goals. We support and encourage students who intend to transfer as well as students pursuing career and technical training. We seek educational empowerment in all we do. We provide students with rigorous and comprehensive courses that allow them to perform at a high level while also fostering curiosity and excitement about the physical world. We also provide an exciting learning opportunity for non-physics and non-science majors that provides basic understanding of physics and problem-solving skills.

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

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

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

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

**Full-time faculty (FTEF)**  
1.5

**Part-time faculty (FTEF)**  
4.57

**Classified & other staff positions that support this discipline**  
One 20% Academic Department Assistance and One 50% Lab Technician

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

## **PROGRAM INFORMATION**

## **PROGRAM OUTCOMES**

Begin this section by reviewing the Program Review reports for courses and programs in TracDat. All active course and program outcomes should be systematically assessed over a 3-year cycle.

- **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.

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

In the last year we have conducted SLO assessments on all our courses since none had been done before. We are now on a three-year assessment cycle plan in which the evaluation, assessment, and review of our courses will be staggered. We communicate regularly with faculty and transfer staff at other colleges and universities. We maintain contact with many of our students after they transfer.

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.](#)

**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.**

A number of courses in the Physics discipline support the following General Education/Institutional Learning Outcomes:

-Quantitative Literacy

- Inquiry and Analysis
- Critical Thinking
- Information Literacy

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

The assessment of the learning outcomes for our courses indicate that students are gaining the quantitative literacy, analytical, and critical thinking skills that we expect them to take away from our courses.

We have some gaps that are hard to address in the current framework of our courses and the CORs including:

- Intercultural Knowledge
- Ethical Reasoning
- Civic Knowledge and Engagement

We hope to fill these gaps by introducing some service learning opportunities in which students can enhance their teamwork, ethical reasoning, civic engagement, and problem solving skills.

We would like to develop a cross-disciplinary class called "Energy and the Environment" that would satisfy these additional outcomes.

## **ENROLLMENT 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 efficiency trend over the last 5 years? Was it expected?**

Our efficiency has improved modestly over the last five years. We are now up to 445 WSCH per FTEF. Our fill rates have been flat but good, typically 86%.

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

Our enrollments have continued to grow over the last five years. The last two years shows increase of 14%. This year we also had explosive enrollment growth. Many of our instructors voluntarily over-enrolled their classes because of the demand. Our most challenging majors course, PHYS-231, has increased from 25 students to 74.

The department has undergone some re-alignment of goals, philosophy, and staff changes. We are now reaching a broader population of students including women, students of color, and other disproportional impacted groups.

**Are there particular courses or programs that are not getting sufficient enrollment, are regularly cancelled due to low enrollment, or are not scheduled at this time? What is contributing to this issue? Does this level of efficiency meet the needs of the program and the district?**

No

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?**

75.0%

**Why did you choose this standard?**

We chose this higher standard, especially in our majors courses, because students are expected to have completed several pre-requisites and are therefore better prepared to do difficult college-level work. Our courses are required of most students pursuing a career in STEM and therefore serve as important bridge that needs to be as accessible and welcoming as possible.

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

Increased

**Was this expected?**

Yes. Our success rate has climbed significantly in the last several years. Our primary majors course, PHYS-230, has increased from an average of 26% to 69% in year 2017-18.

**What is your Stretch goal for COURSE success rates?**

80.0%

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

For the same reasons stated above, it is important that we provide a welcoming and accessible offering of courses for those seeking careers in STEM. We feel it is important to make careers in STEM available to the community we serve, especially to groups that have been under-represented in those fields. We believe that the current enthusiasm for promoting STEM and the continued student support services being offered by the College (STEM center, MATH center, etc.) should allow us to meet this target.

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

Increased

**Was this expected? Please explain.**

Our retention rate has climbed to 87%. This is expected given the re-alignment of department goals, philosophy, and staff.

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

Gender  
Ethnicity

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

We are working to close this gap. It has gone from 28% to 63%

One reason for gap is lack of women faculty and role models in our department. We are now actively recruiting women to our department.

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

We are working to close this gap. It has gone from 28% to 63%

One reason for gap is lack of women faculty and role models in our department. We are now actively recruiting women to our department.

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

N/A

**Do you have any best practice methods you use for online courses to share with the community?**

N/A

## **COURSE OUTCOMES**

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

We assess our course student learning outcomes on a 3-year cycle by reviewing student performance on embedded questions on exams. At times we assess all sections and other times a sampling of sections. Sometimes we enter SLO results more frequently than every three years. Results are entered into TracDat.

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

Last year we completed SLO assessment for ALL our courses.

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

Students are able to successfully pass the course assessments with success rates above 75%. At this point the physics faculty need to be better at coordinating and communicating across the sections they teach. We have committed to meet to brainstorm best practices, share proven strategies for retention and engagement, and consider program-wide changes about pedagogy as a result of this reflection. By sharing the ways in which various instructors teach each SLO content area, we can ensure quality and consistency of instruction. When we have done this in the past, many of these successful teaching techniques have been adopted by other instructors. In this way, the SLO assessments will assist in improving our courses and program.

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

There is concern about the lack of department guidelines and examples of best practices for our adjunct faculty. Many of our CORs are out of date and need to be reviewed. Meeting regularly, creating guidelines, and updating our CORs will goals for the coming year.

**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?**

We need to be better at meeting regularly with our adjunct instructors and share some best practices in teaching physics so that all of our instructors have tools to help students succeed.

# **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 have three main tracks with different outcomes goals.

For our majors track, the SLOs are geared toward preparing students for transfer to four-year university.

We are now working closely with our accreditation officer and colleagues at CSUSM and other universities to ensure that our courses and programs are aligned with their requirements so that students are well situated to succeed upon transfer.

Our non-majors track primarily serves non-physics or engineering STEM majors, especially life sciences. For those courses we are working with our colleagues from other departments for proper alignment and outcomes.

Our third track is for general education majors. We work closely with the Physics faculty at CSUSM since this is an area of expertise for them and they are passionate for developing and promoting physics pedagogy.

## **What is your departmental strategy on how you schedule your courses including the time of day you offer courses? Do you use fast track or block scheduling (putting required classes near each other) to organize required classes (Particularly to meet the needs of disproportionately impacted students)?**

This is an area of weakness. Our schedules are mostly historical with an emphasis on instructor preference and classroom availability rather than sound strategy for meeting student needs.

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

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

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

No

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

We need to update the Course Outline of Record for most of our classes.

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

This is not a concern.

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

No

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

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

**Is your department offering online classes?**

No

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

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

Through close interaction with students we discuss and learn about the student experience in our program and on campus. We have informal encounters with community members who have had some interaction with our program, especially parents.

## **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?**

Physics majors are widely employed throughout industry. In addition to having specific knowledge and skill-set, physicists bring a systems-thinking lens to projects and solving problems. Physicist work in all fields of science and technology.

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

### **KNOWLEDGE**

- Physics
- Engineering
- Scientific Computing
- Technology
- Computer and Electronics
- Production and Processing
- Mathematics
- Design
- Fabrication

### **SKILLS**

- Reading Comprehension
- Critical Thinking
- Troubleshooting

- Writing
- Complex Problem Solving
- Active Listening
- Active Learning
- Speaking
- Judgement and Decision Making
- Monitoring
- Coordination
- Repairing
- Equipment Maintenance

#### ABILITIES

- Inductive Reasoning
- Near Vision
- Oral Comprehension
- Deductive Reasoning
- Written Comprehension
- Information Ordering
- Problem Sensitivity

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

Through a combination of lecture, lab exercises, reading assignments, projects, and internships. We believe that our courses and programs encourage students to acquire and/or enhance the KSA's listed above. For example, our lab courses students to work as a team on labs and semester projects. These projects reinforce the students' knowledge in physics, engineering, mathematics, computing, technology, design, and fabrication.

They also enhance students' skills in reading comprehension, critical thinking, troubleshooting, speaking, coordination, as well as judgement and decision making. Lastly, students develop abilities in inductive and deductive reasoning as they learn to analyze and interpret data.

#### **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?**

Yes

#### **Please list any questions and describe what you need to integrate work-based learning.**

Not sure.

#### **How do you engage with the community to keep them apprised of opportunities in your program?**

We are weak on this. We do participate in public service events and showcase our student projects. We give physics demonstrations at local middle schools and reach out to high-school teachers to recruit for the Promise program.

## **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

Recruit and hire highly qualified faculty

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

Existing

#### Goal Status

Ongoing

#### How will you complete this goal?

We have been approved to hire a new full-time faculty member. Part-time positions are open. We are looking at ways we might create opportunities for graduate students at UCSD and other local universities.

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

Hire new faculty. Increase faculty contact, presence, stability, and resource for students.

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

Provide students with an outstanding learning experience including an engaging teaching and learning environment for students of diverse origins, experiences, needs, abilities, and goals. Help support and encourage students who intend to transfer as well as students pursuing career and technical training. Update courses, modernize curriculum, create guided pathways.

#### Expected Goal Completion Date

5/1/2020

### Goal 2

#### Brief Description

Update and modernize curriculum

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

Existing

#### Goal Status

Ongoing

#### How will you complete this goal?

Allocate time and resources.

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

Better articulation with other colleges and universities. Better preparedness for our students.

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

This is essential in order to provide students with reliable transfer opportunities.

#### Expected Goal Completion Date

5/1/2020

### **Goal 3**

**Brief Description**

Develop Guided Pathways and ADT

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

New

**How will you complete this goal?**

Allocate time.

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

Issue degrees. Create guided pathways and program mapping.

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

Issuing transfer degrees will better account for what we do as well as help college numbers. Guided pathways is perfectly suited to meeting the needs of most of our students.

**Expected Goal Completion Date**

5/1/2020

### **Goal 4**

**Brief Description**

Develop Demonstration Resources

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

New

**How will you complete this goal?**

Assign faculty member to take charge of this task. Work with ISA  
Secure funding for equipment.

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

Enhances understanding of the physical world. Generates interest and promotes enthusiasm for the subject. Attracts students to the program.

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

Physics demonstrations are an important and standard component in physics pedagogy. Our department lacks these resources which causes barriers to student understanding and diminishes the student experience. This is a common complaint from our adjunct faculty who have these resources available at their other teaching positions.

**Expected Goal Completion Date**

5/3/2021

## **STAFFING AND RESOURCE NEEDS**

### **Instructions**

1. Refer to [Strategic Plan](#).
2. See [Data](#).
3. See career info (In PRP)

**Are you requesting additional full-time faculty?**  
No

**Are you requesting additional Staff, CAST or AA?**  
Yes

**In the last ten years, what is the net change in number of Staff in the department? (loss vs. gain)**  
0

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

### **Staff, CAST, AA request 1**

**Title of Staff position you are requesting**  
Instructional Support Assistant IV

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

We need the full attention of a dedicated Lab Technician (ISA). Labs are currently set up and maintained by full-time faculty, impacting their time and ability to engage in more constructive activities. ISA is needed in order to expand the program to south center and grow the program at San Marcos campus. Our program lacks the demonstration equipment and procedures that are standard for Physics programs and important part pedagogical component. We need support to provide this.

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

Yes

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

ISA is needed to maintain equipment and facilities. Labs have hazards that need qualified personnel to manage and supervise.