



Program Review and Planning 2019-2020

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
2019-2020

Are you completing a comprehensive or annual PRP?
Comprehensive

Department Name
Physics/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.

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?

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?
Yes

Are you requesting additional Staff, CAST or AA?
No

% of FTEF for on-going reassigned time (department chair, program director, coordinator, etc.)

REQUEST FOR ADDITIONAL FULL-TIME FACULTY

Faculty Request 1

Title of Full-Time Faculty position you are requesting

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

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

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

Please summarize the discipline productivity, efficiency, and any regional career education needs for this discipline.

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

RESOURCE REQUESTS AND BUDGET ALLOCATION REVIEW

Budget Analysis: This section should be completed by department chairs by the end of September.

Are there areas in your budget where there has been a historical surplus (See three year trend)?
No

Are there processes that need to be examined to ensure we are being the most efficient with

funding?

No

Are there ongoing needs in your department budget that you currently do not have the resources for?

No

Do you have non-general fund sources of funding?

No

One Time Needs

For more information about funding sources available, see [IELM BLOCK GRANT, LOTTERY PERKINS AND STRONG WORKFORCE GUIDELINES](#) (on the left menu of the web page.)

Please check with your department chair on the availability for this cycle.

Do you have one-time funding requests?

No

Review

Chair Review

Chair Comments

Chair Name

Chair Sign Date

Dean Review

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

I am happy to see enrollment increasing steadily, as well as increases in success and retention rates. PHYS can and should be a popular discipline at Palomar, with great employment opportunities after completion. I am also pleased to see that all courses are now scheduled to be assessed regularly.

Areas of Concern, if any:

We do see gaps in gender and ethnicity success rates. Faculty mentioned that there are efforts being put in place to address these gaps, and I am interested to see what these are and how they will be implemented over the course of the next year.

Recommendations for improvement:

I believe the discipline will benefit greatly by the development of a mission statement. As mentioned, there new faculty in the department that can help shape the vision for ths department moving forward. The PHYS discipline has a huge potential, and a clear mission and vision will help drive the work over the next year. Additionally, while GE outcomes were noted there was no mention of how the GE/Institutional Learning Outcomes are met. This should be discussed as a part of the discussion regarding the mission of the program.

I love the idea of adding in work based learning components, like service learning, to courses. These activities will help students find relevance in the curriculum and help transition theory into practice. Please reach out to Service Learning Department or Work Based Learning coordinators for support in this area.

Faculty note that the scheduling of classes has been based on historical offerings and instructor preference, and I agree that there is opportunity for growth by working in collaboration with other departments when scheduling. Students often need courses from multiple disciplines and will benefit from this scheduling strategy.

Dean Name
Nichol Roe

Dean Sign Date
11/12/2019

IPC Review

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

Areas of Concern, if any:

Recommendations for improvement:

IPC Reviewer(s)

IPC Review Date

Vice President Review

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

This area has made a lot of positive changes- looking forward to continued development.

Areas of Concern, if any:

Recommendations for improvement:

Vice President Name
Jack S. Kahn Ph.D.

Vice President Sign Date
1/30/2020