



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?
Annual

Department Name
Mathematics

Discipline Name
Mathematics (MATH)

Department Chair Name
Jay Wiestlinmg

Division Name
Mathematics, Science and Engineering

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

Discipline Mission statement

The mission of the Palomar College Mathematics Department is to provide an environment where a diverse student body can learn and become competent users of mathematics and mathematical applications. Moreover, the department will contribute to the development of students as mathematical thinkers, to continue to grow in their chosen professions, and to be successful after transferring to a college or university.

In pursuing this mission, primary departmental functions are the development, dissemination, and application of mathematical knowledge in the areas of mathematics and statistics. We will serve students who are STEM majors and minors, general education students, at both basic skills and transfer levels.

In fulfilling this mission, the department creates an environment where the faculty can continue to grow as teachers and scholars, while providing public and professional service.

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

Does your discipline have at least one degree or certificate associated with it? Are any of your programs vocational (CTE/CE)?

Yes

No

List all degrees and certificates offered within this discipline.

Associate in Science in Mathematics for Transfer
Associate in Science in Mathematics

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

Jay Wiestling - Chair
Kelli Miller - ADA
Fari Towfiq - Director of the Mathematics Learning Center
Cindy Anfinson - Instructor

Full-time faculty (FTEF)

23.40

Part-time faculty (FTEF)

31.26

Classified & other staff positions that support this discipline

Kelli Miller - ADA
Yuan-Lin Lee - Tutor Center Coordinator

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.

How well do your program's learning outcomes communicate the scope and depth of the degree/certificate offered and align with employer and transfer expectations?

Our outcomes communicate the scope and depth of our degrees quite well. One outcome communicates our desire and efforts to prepare students for transfer. The other outcome communicates our desire and efforts to prepare students for employment in entry-level positions that require knowledge of mathematics, such as Technical Assistant and Mathematical Technician.

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

We will survey students this semester, seeking their view on the effectiveness of our program.

Summarize the major findings of your program outcomes assessments.

Over 19% of our STEM students are receiving an AS in Mathematics. The number continues to rise. A few years ago this number was at about 11%.

76% of STEM students feel that we adequately prepared you to transfer to a college or university, to major in science, technology, engineering or mathematics. This number has been ranging from 76% to 85%, with a mean of 81%, over the last several years. We don't know if this score of 76% is statistically different from the mean. We will assess again this year to see if it comes back up.

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.](#)

PROGRAM COMPLETIONS

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

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

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

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

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

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

AS - 4

AS-T - 24

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

Increased

What factors have influenced your completion trends?

The hiring of quality support staff and tutors in our Mathematics Learning Center. In addition, we added Saturday hours in the Mathematics Learning Center. Both of these have allowed the students to get the quality help that they need with their mathematics courses.

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?

55.0%

Why did you choose this standard?

The statewide average is 55%. No one can expect that the success mathematics is the same as it is in dance. It is a very difficult subject for a vast majority of the population. It is, perhaps, the only subject in which it is socially acceptable to fail a class. Students plan on failing. With these conditions, it would be a great feat to even break the 60% mark

What is your Stretch goal for COURSE success rates?

60.0%

How did you decide upon the goal?

we think that our rate should be higher than the state average

COURSE OUTCOMES

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

We have not changed our assessment methods since the last PRP

Summarize the major findings of your course outcomes assessments.

Our most recent report of assessment results were for Math 120. Here is what we saw. 99% of the students were able to construct a bar chart, with 57% doing it accurately and 42% making minimal mistakes. We were pleased with the student outcomes; the minimal mistakes were items like drawing touching bars or not labeling the scales. Obviously the students understood what to do. 92% of students were able to compute appropriate descriptive statistics, with 61% doing it completely accurately. Some students who weren't using graphing calculators had difficulty getting to the right answer. However, some students who were using the graphing calculator still put down the wrong number. 52% of students were able to complete a calculation involving inferential statistics, with 40% doing it accurately and 12% making minimal mistakes. Inferential statistics is usually taught late in the semester and students don't always have their understanding complete by the time of assessment.

This section is intentionally blank for annual PRPs. Please click "Next" to continue.

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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?

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

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

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?

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

Improve the number of students who successfully complete a college level mathematics course and comply with AB705.

Is this a new or existing goal?

Existing

Goal Status

Ongoing

How will you complete this goal?

As a department we are moving forward the following changes.

- Math 56, 100, 110, 120, and 130 will be offered with and without an integrated support corequisite

class, placement determined by MM.

- These classes, along with their corequisite class, will be scheduled back-to-back and taught by the same instructor. Students would not feel like they are in two different classes.
- A class and its support class will be linked (students would not be able to register for one and not the other).
- Instructors will either pick a linked pair or a class without support.
- Other than their initial placement, students will have the choice of taking future classes with or without support.
- If a student fails a corequisite pairing, they may be allowed to take the class again without the support class. Department chair will make the determination, after consultation with the instructor.
- Classes with support will need to be taught with pedagogy that includes classroom activities.
- Faculty training will be provided.
- Support classes will be two units, except, possibly, 100.
- Math 10, 15, 50, and 53 will be removed from the mainstream schedule. There will be some form of 15/50 or 53 offered to those who need it, through local adult education.

Outcome(s) expected (qualitative/quantitative)

We hope to have outcomes similar to some states who have implemented co-requisite models, such as

- The State of Tennessee: Completion rates went from 12.3% to 51%
- Georgia: Traditional: 20% success rate in two years Corequisite: 63% success rates
- West Virginia: Traditional: 14% success rate in two years Corequisite: 62% success rates

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

It will allow us to pursue our primary departmental functions, which are the development, dissemination, and application of mathematical knowledge in the areas of mathematics and statistics. We will serve students who are STEM majors and minors, general education students, at both basic skills and transfer levels.

Expected Goal Completion Date

8/19/2019

Goal 2

Brief Description

Accelerated Pathways

Is this a new or existing goal?

Existing

Goal Status

Ongoing

How will you complete this goal?

We plan to grow our Accelerated Mathematics Gateway program, and we are going to offer pathways for non-STEM majors to finish their mathematics in one year.

Outcome(s) expected (qualitative/quantitative)

AB 705 requires a community college district or college to maximize the probability that the student will enter and complete transfer-level coursework in mathematics within a one-year timeframe. We want to increase the number of students who complete transfer-level coursework in mathematics within a one-year timeframe.

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

It is a guided pathway.

Expected Goal Completion Date

8/19/2019

Goal 3

Brief Description

Reduce the class cap on our pre-transfer level courses to 32.

Is this a new or existing goal?

Existing

Goal Status

Ongoing

How will you complete this goal?

We need to convince the union and the district that this is best for our students.

Outcome(s) expected (qualitative/quantitative)

We expect the success rates to improve as instructors will have additional time to work with students and use active learning techniques. The CONFERENCE BOARD OF THE MATHEMATICAL SCIENCES states on its website “we call on institutions of higher education, mathematics departments and the mathematics faculty, public policy-makers, and funding agencies to invest time and resources to ensure that effective active learning is incorporated into post-secondary mathematics classrooms.” Inside Higher Ed’s website states, “instructors in small (10-14) and medium (15-34) classes are more likely to involve students in hands-on projects and real-life activities, assign projects that require original or creative thinking, form teams or discussion groups to facilitate learning, and ask students to help each other understand concepts or ideas.” Furthermore, they state “The evidence found in this analysis unequivocally leads to the conclusion that class size has a negative impact on the student-rated outcomes of amount learned, instructor rating, and course rating.” We need smaller class sizes.

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

It will allow us to pursue our primary departmental functions, which are the development, dissemination, and application of mathematical knowledge in the areas of mathematics and statistics. We will serve students who are STEM majors and minors, general education students, at both basic skills and transfer levels.

Expected Goal Completion Date

3/20/2020

Goal 4

Brief Description

New Building

Is this a new or existing goal?

Existing

Goal Status

Ongoing

How will you complete this goal?

We don’t know. Maybe the department needs to buy some lumber. Maybe we just need to change the culture of putting the largest department in the district last.

Outcome(s) expected (qualitative/quantitative)

As the largest department in the district (larger than some divisions), we see the vast majority of Palomar

College students at some point or another. It would be nice if most of our students didn't have to track us down as our offices are located in five different buildings, two of which are extremely ugly and inefficient. This is the view of Palomar that we give students. Our faculty teach in 11 different buildings on the main campus, and have to haul around calculators, document cameras, and laptops from building to building. Valuable instruction time is lost with all the setup before and after class our faculty currently engage in. Most important is the need for all math faculty to be located together in one space as well as have the Math Center embedded within the department. This will result in more communication, more collaboration and help us improve the way we educate and serve our students.

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

This will result in more communication, more collaboration and help us our guided pathways

Expected Goal Completion Date

8/20/2020

Goal 5

Brief Description

Institutionalize the Mathematics Learning Center.

Is this a new or existing goal?

New

How will you complete this goal?

We have to get more than just the district VPI to see the importance of the MLC. We may have to shut it down and see what the district does without the \$1.3 million that it generates. Also, in light of the success-based funding, the district can then see what will happen to the success rates in mathematics.

Outcome(s) expected (qualitative/quantitative)

WE can continue to provide a vital service to our students. Furthermore, our director of the MLC can actually spend some time with students instead of running around the campus begging for funding.

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

It will allow us to pursue our primary departmental functions, which are the development, dissemination, and application of mathematical knowledge in the areas of mathematics and statistics. We will serve students who are STEM majors and minors, general education students, at both basic skills and transfer levels.

Expected Goal Completion Date

3/20/2020

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?
Yes

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

3

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

2016-2017 % FTEF (on-going reassigned time)
120%

2017-2018 % FTEF (on-going reassigned time)
120%

2018-2019 % FTEF (on-going reassigned time)
120%

% of FTEF for temporary reassigned time (grant activity, sabbaticals, leaves, other reasons)

2016-2017 % FTEF (temporary reassigned time)
404%

2017-2018 % FTEF (temporary reassigned time)
517%

2018-2019 % FTEF (temporary reassigned time)
387%

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

REQUEST FOR ADDITIONAL FULL-TIME FACULTY

Faculty Request 1

Title of Full-Time Faculty position you are requesting
Mathematics Instructor 1

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

This position will help meet the district's Goal 4: Strengthen, promote, and support the college's diverse workforce through strategies focused on recruitment, hiring, and retention, of Strategic Plan 2019. Furthermore, this position fits in with the District's Mission statement, by helping provide an engaging teaching and learning environment for students of diverse origins, experiences, needs, abilities, and goals. Our new instructor would support and encourage students who are pursuing transfer-readiness, general education, basic skills, career and technical training, aesthetic and cultural enrichment, and lifelong education. They would be committed to promoting the learning outcomes necessary for our students to contribute as individuals and global citizens living responsibly, effectively, and creatively in an interdependent and changing world.

Additional full-time instructors will mean higher quality mathematics instruction and improved student learning of mathematics through increased student/teacher contact, better faculty communication, and greater departmental implementation of current research recommendations in mathematics education and innovation in mathematics curriculum, teaching and assessment.

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

We continue to see a shortage of people with a MS in mathematics willing to teach adjunct. I see a lot of resumes listing engineering degrees, not mathematics degrees. There are very few people with mathematics degrees, and even fewer that want to work for \$35 per hour. By contrast, though, when we advertise a full-time position, we see plenty of applicants with the proper degree. We have 30 full-time faculty and 51 adjunct faculty, this semester. It should also be noted that out of the 30 full-time faculty, we

currently have 4 FTEF to re-assigned time. We are a large department and very involved in the college, so our loss to re-assigned time is always quite high.

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

no

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

Since 2012, our fill rate has ranged from 84% to 102%. Our WSCH/FTEF has been between 524 to 599.

Faculty Request 2

Title of Full-Time Faculty position you are requesting

Mathematics Instructor 2

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

This position will help meet the district's Goal 4: Strengthen, promote, and support the college's diverse workforce through strategies focused on recruitment, hiring, and retention, of Strategic Plan 2019.

Furthermore, this position fits in with the District's Mission statement, by helping provide an engaging teaching and learning environment for students of diverse origins, experiences, needs, abilities, and goals. Our new instructor would support and encourage students who are pursuing transfer-readiness, general education, basic skills, career and technical training, aesthetic and cultural enrichment, and lifelong education. They would be committed to promoting the learning outcomes necessary for our students to contribute as individuals and global citizens living responsibly, effectively, and creatively in an interdependent and changing world.

Additional full-time instructors will mean higher quality mathematics instruction and improved student learning of mathematics through increased student/teacher contact, better faculty communication, and greater departmental implementation of current research recommendations in mathematics education and innovation in mathematics curriculum, teaching and assessment.

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

We continue to see a shortage of people with a MS in mathematics willing to teach adjunct. I see a lot of resumes listing engineering degrees, not mathematics degrees. There are very few people with mathematics degrees, and even fewer that want to work for \$35 per hour. By contrast, though, when we advertise a full-time position, we see plenty of applicants with the proper degree. We have 30 full-time faculty and 51 adjunct faculty, this semester. It should also be noted that out of the 30 full-time faculty, we currently have 4 FTEF to re-assigned time. We are a large department and very involved in the college, so our loss to re-assigned time is always quite high.

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

no

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

Since 2012, our fill rate has ranged from 84% to 102%. Our WSCH/FTEF has been between 524 to 599.

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

REQUEST FOR ADDITIONAL STAFF, CAST, AA

Staff, CAST, AA request 1

Title of Staff position you are requesting

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

Is there a scarcity of qualified Part-Time Staff (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.