PROGRAM REVIEW Fall 2022

Program: Mathematics

Division: Science, Technology, Engineering and Mathematics

Date: 10/28/2022

Writer(s): Math Department

SLO/SAO Point-Person: Jennie Graham

Audience: Deans, Vice Presidents of Student Services and Academic Services, All Planning and Allocation Committees. This document will be available to the public.

Uses: This Program Review will be used to inform the campus and community about your program. It will also be used in creating Division Summaries, determining College Planning Priorities, and allocating resources. The final use is to document fulfillment of accreditation requirements.

Please note: Program Review is NOT in itself a vehicle for making requests. All requests should be made through appropriate processes (e.g., Instructional Equipment Request Process) or directed to your Dean or supervisor.

Time Frame: This Program Review should reflect on program status during the 2022-23 academic year. It should describe plans starting now and continuing through 2023-24.

Sections: There are two sections to this document. Sections and questions identify the name of the committee or office that will use the information and where you can get additional help.

- The first section focuses on general program reflection and planning.
- The second section focuses on data analysis, including SLOs/SAOs/PSLOs
- The final section is a review of your pathway maps and curriculum, to be filled out only by programs with curriculum offerings.

Topics: The Program Review Glossary defines key terms. Writers should review this glossary before writing: https://bit.ly/2LqPxOW

For Help: Contact Nadiyah Taylor: ntaylor@laspositascollege.edu.

A list of contacts for help with specific sections is provided on the Program Review website under the “tools for writers” tab. [https://bit.ly/3fY7Ead]

Instructions:

1) Please respond to each question with enough detail to present your information, but it doesn't have to be very long.
2) If the requested information does not apply to your program, write "Not Applicable."
3) Optional/suggested: Communicate with your dean while completing this document.
4) Send an electronic copy of this form to Nadiyah Taylor and your dean **by November 1, 2022**

Helpful Links:

Program Review Home Page

Fall 2021 Program Reviews

Frequently Asked Questions

Throughout this document you'll see that equity is a guiding principle.
Here is the LPC definition:

Las Positas College will achieve equity by changing the impacts of structural racism, ableism, homophobia, and systematic poverty on student success and access to higher education, achieved through continuous evaluation and improvement of all services. We believe in a high-quality education focused on learning and an inclusive, culturally-relevant environment that meets the diverse needs of all our students.

LPC Equity Definition: Equity is parity in student educational outcomes. It places student success and belonging for students of color and disproportionately impacted students at the center of focus.

Section One: Your Program In 21-22 – Please check N/A where relevant

A. Accomplishments: Identify accomplishments from the 21-22 AY.

Some areas you may want to note in your explanation are:

- Did your accomplishments support your program's plans identified in 21-22 PR
- Did they relate to guided pathways, and/or
- Did they support areas in the equity definition above

_____N/A

Accomplishments
Faculty members coordinated communities of practice for Math 30, Math 39, Math 40, Math 47, and Emporium with the goal to research Open Education Textbook options and online homework platforms that students can use at no charge. Math 40 and Math 47 are now fully OER, and we anticipate 39 and 30 to follow soon. These are being piloted by a few faculty and the Emporium sections. This supports the college's mission of equity for economically disadvantaged students.
Math partnered with Emerald Templeton in Academic Services to offer Math 40 to female inmates at FCI Dublin, with plans to offer this as well as Math 33 in the future. .
Math continued to offer cohorted classes/learning communities for Math 30, 39, and 40 for Umoja and Puente, and designated sections for our Engineering Tech and Veteran students. Math's only pre-transfer level math class, intermediate algebra, has also been kept active to serve Middle College students. In addition to our faculty being leaders in the creation of these communities, many have participated in professional development that enables them to teach these classes.
Our department continued to be strongly represented among committee chairs, Academic Senate, and in leadership roles in campus initiatives such as Guided Pathways, UndocuAlly, Puente, and Umoja, as well as acting as club advisors for AGS, Math Club, Girls Who Code, Dreamers Thriving Not Surviving, among others. Faculty volunteered their time to give talks to the Math Club and table at campus events.
The department brought back more in-person classes, while maintaining online options and introducing HyFlex classes to give students as much access as possible (especially important during the current decline in enrollment). This notably includes a HyFlex option for all of our concurrent support courses and emporium sections.
Math continued to build the supply of graphing calculators, through requests to TI and instructional equipment requests, so that more students can borrow them for free from the Library.

In collaboration with Emerald Templeton, the department successfully offered a new Geometry course for High school students over Summer 2022. Not only did LPC math faculty create the course outline, but collaborated with the high school districts on the textbook and worked to train community college faculty to effectively engage with high school students.
We continued to coordinate the AMATYC competition, bringing it back in-person for the first time since the shutdown in 2020. In the past, LPC students have ranked in the top 10 nationwide, so we are looking forward to reaching that goal once more.
Math offered smartshops (mostly online) on topics such as Conquering Math Anxiety and Technology for Statistics. We would love to be able to offer more SmartShops for just-in-time math help, but have yet to find the time and person-power to do so.
Math Jam is back in-person for the first time since 2020.
Meeting student needs for integration of foundational material and perhaps less rigorous pacing schedule due to influx of under prepared students in the wake of AB 705/1705, the Math Emporium mode added Math 30, 39 and 47 to its course offerings. Math 40 has been in that mode for a couple of years. Concurrent support classes are adding back in the support for Math 1, 2, and 3 to aid students in filling holes in their foundational knowledge as well.
In collaboration with ECE, faculty worked to create a course outline and textbook for Math 27 - Number Systems for Educators. It was unfortunately unable to be offered in Spring 2022 due to low enrollments, but it is on the books for Spring 2023 and should be a go.

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B. Challenges, Pain Points, and Needs:

What significant challenges or obstacles did your Program face during AY 21-22 especially related to accomplishing program goals/plans? You may want to consider areas in the equity definition on page 2.

_____N/A

Challenges/Pain Points/Needs
Reassigned time is not adequate for the full scope of responsibilities assumed by the Department Coordinator. Departmental duties are spread out amongst the full-time faculty as much as possible, but with all of the extra duties those same faculty members assume outside the department, a lot is left on the coordinator's to-do list. At a two-third's load in a given semester, coordinating math is do-able without compromising the quality of teaching and maintaining a decent work/life balance. However, in order to

do that, the coordinator should not have to dip into their unbanked time in order to cover missing load when they choose not to take a full course load and be department coordinator.
Overdue full-time faculty replacement and another on the way. Craig Kutil's position has been vacant for several years now and as of Spring 2023, we will be out Jason Morris as well. Ideally, we would also love another full-time faculty member in addition to those replacements to fulfill all the responsibilities and department initiatives. Our full-time math faculty are currently overburdened with responsibilities in an unsustainable way. The pressures of collegial responsibilities, state mandates, and department initiatives designed to aid our students are often not given the time and attention they need, which causes the quality and depth of our instructional efforts to suffer.
Declining enrollment has adversely impacted faculty and students in the past year. Factors that may include pandemic-related challenges, student barriers to entry, and negative effects of AB 705 are making it harder for students to find the right classes, especially when classes are canceled due to low enrollments. If we cancel the classes that students want to take, then they just go somewhere else that is offering those classes, which only exacerbates the low enrollment at the college. These canceled classes also make it harder for our Part-Time faculty to feel connected to the college, let alone earn a living.
Courses' financial accessibility warrants consideration and piloting of Open Education Resources instead of currently assigned textbooks, which require students to pay for access to educational materials. Researching, planning, and devising OER for math classes is a slow and time-consuming process. Reassign time for departmental OER coordination and development would make the process more cohesive and improve quality. Our request for more FT faculty would also help alleviate some of this burden as the workload can be more sustainably spread out.
Responses to AB 705/1705 have so far included adding more transfer level courses to Emporium mode and adding the requirement of Concurrent Support or Math Jam for the lowest GPA band. Both of these special forms of instruction could use support in the form of reassign-time for the faculty coordinating those efforts and instructional assistant support. In Emporium, with the addition of the three new transfer level courses and potential more down the road, it would be ideal to have a faculty member with dedicated, funded, time to help with the coordination of the mode. Currently, it is being coordinated by a faculty member and the Sr. Instructional Assistant, with support from the instructors teaching those classes, but a lot slips through the cracks and is done last minute when there isn't dedicated time to focus on that work. Our students deserve more than something that is "good enough."

Concurrent Support and Math Jam face similar coordination issues. Emporium, at least, has the luxury of having instructional assistants to help coordinate and maintain our blueprint Canvas courses to keep consistency across the sections and courses, but Concurrent support does not have the same level of support. An Instructional Assistant dedicated to help facilitate the running of the Blueprint Canvas courses, student understanding, coordination of part -time instructors, and collaboration with the faculty coordinators would increase the quality of those classes and allow the current faculty coordinators to focus their energy elsewhere to improve content of those courses. For example, we also hope to revamp our Math Jam and Concurrent Support courses to improve our proactive and diverse supports our students need to minimize the learning gaps in their transfer level math courses. In an ideal world, we need a minimum of two (2) additional classified professional staff to assist with our ever-evolving Emporium and Concurrent Support program needs. In order to productively expand and meaningfully reflect on the efficiency of these programs, additional resources and staffing is essential.
Part-Time Faculty involvement with the department continues to be minimal. We have some amazing part-time faculty members who frequently reach out to see what they can help the department with and/or enter their SLO data at the end of each semester, but we have plenty more who do not.
As more classes transition from online back to face-to-face/HyFlex, classroom availability and lab space is a significant obstacle when planning a schedule to offer classes at peak enrollment times. More HyFlex capable rooms or better planning by departments to align course type with room type, would make this easier.
AB 705 and AB 1705 legislation has resulted in our Department choosing to not offer any courses below transfer-level math (outside of Math 55 for Middle College). We also, for the first time this Fall, are requiring Math Jam or Concurrent Support courses during the semester for the lowest band of high school coursework or GPA and recommending support for all others. Our current Guided Self-Placement interface is limited in the message we can provide to our students upon assessment. The information is not carried through to when they enroll in their classes. Unless they save the page that states whether a concurrent support course is recommended or not, they have no way of knowing that when they register and get an error that says they need to take the GSP, which they already did. This confusing sign-up situation caused a lot of issues during Spring and Summer semesters as students tried to register for their courses. The GSP and ClassWeb need some serious revisions to help remove this barrier to entry in their math class.
Math is offering classes in multiple modes of instruction: Asynchronous, Synchronous (in-person/HyFlex) and Emporium. One of the biggest issues we're running into with these different modes is students signing up for a mode that does not fit their learning

style and being surprised by that fact a week or so into the semester. Then they either try to tough it out or drop and lose a semester since they can't join a better fit due to it being full. Math has the information in the class notes, on our website, emailed out to students before the semester starts, and shared with the counselors, but still we have too many students choosing poorly. We know we cannot catch everyone, but there has to be some way to reliably let students know what kind of class they are signing up for before they lose their chance to sign up for something that would fit them a little better.

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C. Reflecting on your program's experiences from 2020 to 2022, what innovations or new processes did you integrate that you would like to continue? (This is a two year overview to include any challenges during the pandemic to now. If you would like to review past Program Reviews, then you can find them here: http://www.laspositascollege.edu/instructionalprogramreview/programreviews.php)

_____N/A

In our continued efforts to address our diverse student needs, the Math Department **engaged in the following during 2020 to 2022 that we would like to continue:**

- We diversified the modes in which we offer first-transfer level math courses to meet the diverse learning needs and interests of our students. Students can enter into our Statistics/Liberal Arts pathway or Business/STEM pathway first transfer-level courses without any prerequisite coursework and choose a mode that best fits their learning needs and lifestyle demands such as face-to-face, asynchronous, synchronous (online), HyFlex (where students choose each day the mode in which they participate), or Emporium (self-paced and understanding). We believe in continuing to offer a variety of modes to our students based on their needs for flexibility and options.
- Free open source materials are being piloted in all of our first transfer-level courses in our Statistics/Liberal Arts and Business/STEM pathways. We hope to expand this option to all sections in the near future.
- Our graphing calculator rental program shifted to the library where they are loaned out to students for free.
- All concurrent support is now offered HyFlex (where students choose each day the mode in which they participate) and students are encouraged to join not only their section of support but any section of support, offered day and evening 5-days a week.

- All Emporium sections are offered in HyFlex and students are encouraged to join any section for additional support from the Math Instructional assistants.
- Math support is now required for the lowest band of high school GPA & coursework, based liberally on the recommendations from the State/RP Group, as part of the Guided Self-Placement process. The Guided Self-Placement now requires, recommends or informs all students of the free concurrent and Math Jam support offered every Fall and Spring.
- We have dedicated faculty trained in Umoja and Puente teaching our first transfer-level courses in our Statistic/Liberal Arts and Business/STEM pathways with dedicated concurrent support classes strategically offered right before their sections.
- Through community outreach, we are working to offer multiple credit and non-credit Geometry sections in response to local high schools' demand.
- We offer math courses at the FCI Dublin Women's Prison.

Some challenges or innovations that we hope to continue but are not institutionalized are:

- Our free graphing calculator loaner program supplies have dwindled due to students not returning the devices or broken due to repeated use. We can not meet the needs of the campus for graphing calculators, which are needed in many Business/STEM and Statistic math courses. We hope this challenge is solved and we will be able to offer a free rental to every student enrolled in one of our math courses which will also allow us to claim Zero Cost on our sections with open source materials. Some faculty are also advocating for the removal of the calculator in our statistics classes in order to reduce the drain on the supplies.
- Concurrent support sections offered in HyFlex have seen an increase in student attendance. We, however, lack the technology to truly offer an equitable experience to students face-to-face and online. We need owl capabilities on our breakout tables by course so that students can collaborate online with in-person students studying the same content and wireless microphone headsets for instructors to use as they walk around the room and assist students in study groups or having a private one-on-one.
- Call campaign to students who withdrew or did not pass a math course by trained tutors who listened, encouraged, and informed students of holistic and academic supports available to students to be successful in their next attempt. We had this innovation thanks to a SCFF Project but the funding has ended.
- Community of Practice open to all full and part time math faculty to engage in equity-driven initiatives to improve our first transfer-level math courses offerings. This was also funded thanks to a SCFF Project but has ended.
- SmartShops that offer foundational math skills in the context of other STEM classes as well as transfer level math classes, right now SmartShops for Math are more about cognitive skills and less about math skills.

D. Explain one way that your program is connected to the College Mission and/or Educational Master Plan. Identify the specific elements.

- *College Mission*
- *Educational Master Plan (see pages 72-76)*

_____N/A

Examples of our Math program working towards ***inclusivity and student equity***:

- Designated faculty have been trained in equity best practices and are teaching classes offered for Umoja and Puente, and designated sections for our Engineering Tech and Veteran students.
- All faculty (part time and full time) were invited to participate in equity based Communities of Practice as part of our SCFF Project.
- Open Educational Resource textbooks and My Open Math homework systems for Math 27, 30,39,40, 47, and 55 and wanting to add in higher level mathematics.
- Free Calculator loaner program through the Library and looking for ways to reduce costs to students through loans and use of OER/free phone applications and applications installed on campus computers for in-class use combined with class sets that instructors could use for in person exams
- Math 40 is currently offered at Federal Correctional Institute with Math 33 on the horizon.
- Offering a wide range of course modes (asynch, synch, HyFlex, Emporium, Hybrid, Face-to-face)
- *Math Jam and Concurrent Support courses are offered for credit with no material costs and for non credit with zero tuition costs to the student.*
- Academic and career pathways are in place for students as they complete their math requirements.
- OEI certified classes (Math 40, Math 55)
- Sharing strategies for more equitable grading practices.

E. Planning: What are the most important plans, either new or continuing, for your Program?

_____N/A

Plan	New	Continuing	Short term	Long term
OER Conversion.		X		X
Concurrent support and/or Math Jam - Required.	X			X
Marketing for the right mode of course selection by students.		X		X
Responding to AB 1705 and minimizing equity gaps.	X			X
SmartShop implementation for math remediation in Math and other STEM fields.	X			X

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F. If you have outreached to students in your department, program, or classes, please share information about what you discovered and how you have used the feedback.

_____N/A

Describe student outreach used to gather feedback. For example, through surveys, conversations, etc.	● Math dept. tables during welcome back week. ● Math jam was on hold for the last couple of years, but was successfully offered prior to fall 2022 semester. ● High school alignment meetings with feeder high schools. ● Advertising for geometry and math 3 classes aimed at High School students. ● Surveying students in select statistics classes regarding their awareness of computing as part of the APEX program in an attempt to increase knowledge/awareness of computing outside of STEM classes. Results to come later this year.
What did you learn?	● Students are generally unaware of the resources we offer for support and types of classes on offer. ● High School advertising for Geometry went well, but we did not have the full turn out that was initially promised and we had to cut some sections this summer. It was a poor use of faculty time, coordination time and scheduler's time to schedule so many and only offer so few.
How will you use the feedback?	● We need to find a way to work with marketing to target students in more meaningful ways. ● Need to work with Emerald to understand why so many students signed up to take Summer Geometry, but so few actually took it.

G. Are there institutional barriers to the equity work that your program would like to engage in, and what suggestions do you have for minimizing or eliminating these barriers? (See page 2, for the equity definition)

_____N/A

Barrier	Suggestions
• Insufficient resources for student use (e.g. calculators) • Textbook expenses • Lack of awareness of math requirements or state legislation • Program-specific information about how our students are, their academic and holistic needs, and the ability to contact them	• Educate faculty (including outside our department) on available free tools/alternatives; apply for more funding to purchase needed resources; try to obtain class sets reserved for Puente/Umoja classes • Expand OER to higher level classes • Spread the word through Town Meetings or Division, or meet with Counseling • Student Success Teams in the future we hope will address our equity driven data requests with proactive communications

Section Two: Data Analysis – Quantitative and Qualitative

A. IR Data Review: Discuss any significant trends in the data provided by the Office of Institutional Research and Planning (or any other data you use for decision-making and planning).

(Note: Not all Programs have IR data available; if your program does not have a data packet or dashboard data, you may note that in the response box.)

- IR Data packets are available here (posted Fall 22): https://bit.ly/2IYaFu7
- Course Set Standard Overview & Success Rates Dashboard can be found in the middle of this page: https://bit.ly/2Y9vGpl

With the implementation of AB705, the current trend packets are not particularly useful as they primarily look at success rates from 107/65/55/50 to college level courses. We need to see if we can get data of students unsuccessful in Math 40 /39/30/47 and see when/if they tried again and

their success rate. Ideally we would like those numbers broken down to those enrolled in a support class or not the first time and those enrolled in support or not the second time. But this is something that would be more meaningful at the end of Spring 2023 when we have had two full semesters of consistent requirements and more "normal" conditions for enrollment.

Of interest though, is the throughput data for Math 1 - Calc 1 to Math 2- Calc 2. There is always a greater dip in the percentage of female students who decide to enroll in Math 2 vs. the Male students who consistently seem to have about 80% enrollment rate. It could be that Math 1 was all the female students needed for their major, so it would be interesting to do a deep dive on what happened to those students and why they did not continue.

Of 141 succeeding in MATH 1:		by Summer 21	
MATH 2		Enrolled in MATH 2	Success Rates in MATH 2
Gender	Female	66%	86%
	Male	85%	93%

Of 141 succeeding in MATH 1:		by Summer 20	
MATH 2		Enrolled in MATH 2	Success Rates in MATH 2
Gender	Female	70%	90%
	Male	80%	86%

Of 71 succeeding in MATH 1:		by Summer 19	
MATH 2		Enrolled in MATH 2	Success Rates in MATH 2
Gender	Female	58%	87%
	Male	82%	81%

Of 81 succeeding in MATH 1:		by Summer 18	
MATH 2		Enrolled in MATH 2	Success Rates in MATH 2
Gender	Female	83%	79%
	Male	83%	87%

Looking just at success rates in Math 1 from 2016 to 2019 it does seem like there are more students taking Math 1, with an overall increase in both recorded genders. There was a pretty significant spike from Fall 17 to Fall 18, but we are not sure why that would be.

	Percent Change	
	Female	Male
Fa16-17	-2%	16%
Fa17-18	87%	13%
Fa18-19	15%	37%

MATH 1		Fall 2019						
		Success		Non-success		Withdrawal		Total
Gender	Female	56	55%	11	11%	34	34%	101
	Male	79	52%	28	18%	46	30%	153
Race-Ethnicity	African American	*		*		*		*
	Asian American	50	68%	6	8%	18	24%	74
	Filipino	7	47%	4	27%	4	27%	15
	Latino	26	46%	10	18%	20	36%	56
	White	40	56%	10	14%	22	31%	72
	Multi-Ethnic	13	54%	4	17%	7	29%	24
Age	24 or younger	135	57%	32	14%	69	29%	236
	25 or older	6	25%	7	29%	11	46%	24
Disability	Any Disability	11	50%	5	23%	6	27%	22
	No Disability	130	55%	34	14%	74	31%	238
Full Time/ Part Time	Full Time (12+ units)	109	57%	26	14%	57	30%	192
	Part Time (6-11.5 units)	25	50%	9	18%	16	32%	50
	Part Time (0-5.5 units)	7	39%	4	22%	7	39%	18
Total Students		141	54%	39	15%	80	31%	260

MATH 1		Fall 2018						
		Success		Non-success		Withdrawal		Total
Gender	Female	60	68%	10	11%	18	20%	88
	Male	79	71%	18	16%	15	13%	112
Race-Ethnicity	African American	*		*		*		*
	Asian American	39	78%	7	14%	4	8%	50
	Filipino	11	55%	4	20%	5	25%	20
	Latino	26	55%	7	15%	14	30%	47
	White	41	72%	6	11%	10	18%	57
	Multi-Ethnic	18	75%	4	17%	2	8%	24
Age	24 or younger	131	72%	24	13%	28	15%	183
	25 or older	10	48%	4	19%	7	33%	21
Disability	Any Disability	11	69%	2	13%	3	19%	16
	No Disability	130	69%	26	14%	32	17%	188
Full Time/ Part Time	Full Time (12+ units)	103	71%	19	13%	24	16%	146
	Part Time (6-11.5 units)	34	69%	6	12%	9	18%	49
	Part Time (0-5.5 units)	*		*		*		*
Total Students		141	69%	28	14%	35	17%	204

MATH 1		Fall 2017						
		Success		Non-success		Withdrawal		Total
Gender	Female	26	55%	9	19%	12	26%	47
	Male	44	44%	27	27%	28	28%	99
Race-Ethnicity	African American	*		*		*		*
	Asian American	18	46%	15	38%	6	15%	39
	Filipino	7	54%	2	15%	4	31%	13
	Latino	12	35%	8	24%	14	41%	34
	White	24	52%	8	17%	14	30%	46
	Multi-Ethnic	7	58%	3	25%	2	17%	12
Age	24 or younger	58	48%	32	26%	32	26%	122
	25 or older	13	50%	4	15%	9	35%	26
Disability	Any Disability	4	36%	3	27%	4	36%	11
	No Disability	67	49%	33	24%	37	27%	137
Full Time/ Part Time	Full Time (12+ units)	52	47%	28	25%	31	28%	111
	Part Time (6-11.5 units)	13	57%	6	26%	4	17%	23
	Part Time (0-5.5 units)	6	43%	2	14%	6	43%	14
Total Students		71	48%	36	24%	41	28%	148

MATH 1		Fall 2016						
		Success		Non-success		Withdrawal		Total
Gender	Female	35	73%	5	10%	8	17%	48
	Male	46	54%	14	16%	25	29%	85
Race-Ethnicity	African American	*		*		*		*
	Asian American	21	70%	4	13%	5	17%	30
	Filipino	*		*		*		*
	Latino	15	52%	7	24%	7	24%	29
	White	29	54%	7	13%	18	33%	54
	Multi-Ethnic	*		*		*		*
Age	24 or younger	73	63%	17	15%	25	22%	115
	25 or older	8	42%	2	11%	9	47%	19
Disability	Any Disability	*		*		*		*
	No Disability	79	63%	16	13%	30	24%	125
Full Time/ Part Time	Full Time (12+ units)	62	63%	12	12%	24	24%	98
	Part Time (6-11.5 units)	15	52%	6	21%	8	28%	29
	Part Time (0-5.5 units)	*		*		*		*
Total Students		81	60%	19	14%	34	25%	134

B. Program-Set Standard (Instructional Programs Only):

The program-set standard is a baseline that alerts programs if their student success rates have dipped suddenly. There are valid reasons a program does not meet the Program Set Standard; when a program does not meet this standard, they are simply asked to examine possible reasons and note any actions that should be taken, if appropriate.

Program-set standard data can be found on this page

- Did your program meet its program-set standard for successful course completion?

  __x__Yes _____No

- If your program did not meet your program-set standard, discuss possible reasons and how this may affect program planning or resource requests.

C. SLOs/SAOs: Assessment of Student Learning and Support

Program Review is our major source of data on student learning for the college and is therefore regularly reviewed. *Each year programs must discuss how their PSLOs, CSLOs, or Service Area Outcomes (SAOs) support the College Mission. This helps us to see how our students are progressing in their learning.*

For assistance with these questions and instructions on how to run the necessary reports in eLumen, click here.

You should complete at least one of the following three sections. Please choose the option(s) below that are appropriate for your program - Go directly to the section(s) you chose.

C1: Instructional Programs with PSLOs (disaggregated PSLOs)

1) To assess PSLOs, CSLOs must be correctly mapped to only one PSLO within eLumen and every mapped CSLO must have assessment data. Please insert a checkmark in one of the following options that correctly describes your data and move on accordingly.
    a. If the CSLOs are mapped correctly and there is data for each CSLO, then continue to question 2.
    b. If the CSLOs have assessment data and the mapping needs to be completed, then complete the mapping within eLumen (See SLO Handbook, p. 7) and continue to question 2.
    c. If not all of the mapped CSLOs have assessment data, then you cannot assess the PSLO. In this case, continue to question C2.

2. Based on your current 3-year plan, list the PSLO(s) for the academic year 2021-2022 that your program selected to review and explain why these were chosen.

Multiple Representation:
Upon completion of the Mathematics AS-T, students are able to demonstrate the ability to use symbolic, graphical, numerical, and written representations of mathematical ideas.

2) What percentage of faculty completed the planned assessments for the selected PSLO? (run Faculty Participation report from last year). ____80%__

3) Non-disaggregated Analysis of PSLO(s): In general, what conclusions can be drawn about student learning in your program?

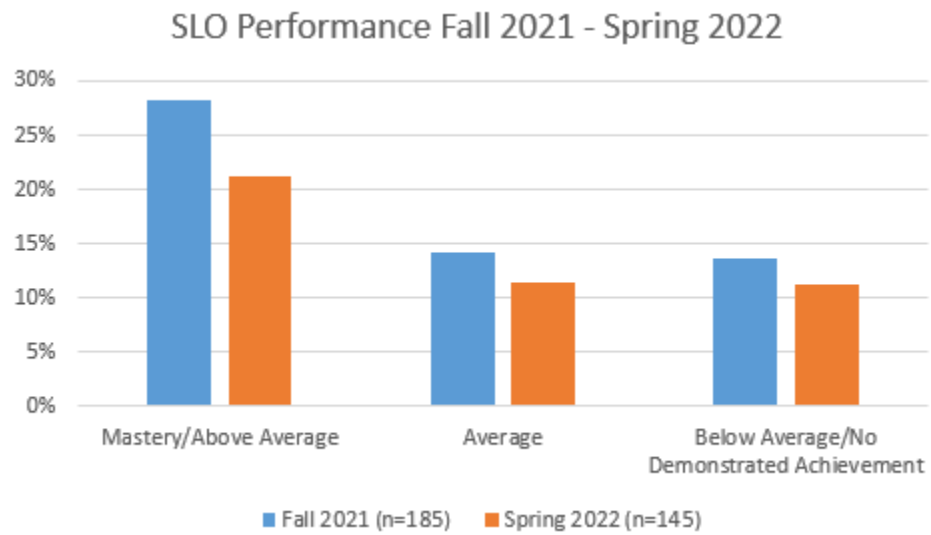
PSLO: Upon completion of the Mathematics AS-T, students are able to demonstrate the ability to use symbolic, graphical, numerical, and written representations of mathematical ideas.

	Mastery		Above Average		Average		Below Average		No Demonstrated Achievement	
Fall 2021	223	40.47%	131	23.77%	109	19.78%	45	8.17%	43	7.80%
Spring 2022	231	41.18%	137	24.42%	105	18.72%	54	9.63%	34	6.06%
Overall	454	40.83%	268	24.10%	214	19.24%	99	8.90%	77	6.92%

The information in the table above is a collection of Math 40, Math 1, 2, 3, 5 and 40, but does not include Physics or Computer Science which are a part of this degree as well. Some of the math classes that feed up to this PSLOs also have little to no data due to lack of participation, so the above information is not as informative as we would like.

Math decided to focus on just one of the SLOs that feeds up to the chosen PSLO since we would like to focus on the "entry" course to the AS-T to get a better sense of the students' knowledge when starting the program. We also had 80% participation in data reporting, so we feel the numbers for this SLO have some value to them.

The chosen SLO for this PSLO is: Upon completion of Math 1, a student should be able to find the volume of a solid of revolution using washers or shells.



Information gathered from faculty reflections:

- This topic is something that is covered at the end of the semester and many faculty felt that at that point, students feel rushed and anxious about upcoming finals and have a hard time focusing on the topic.
- Faculty felt that prerequisite topics were not well understood and added to the confusion of learning this material.
- Faculty found that students either really got it or really didn't get it. Many faculty in online classes (sync/async/combo) saw these results and worried that the students who "got it" may have been cheating to get the correct results.
- Faculty felt that improvement of preparation for the topic was needed, not only in reaching it sooner, but in the variation of the practice material to help students extend the concept and diagram the question instead of just trying to memorize the right category.

4) Disaggregated Analysis of PSLO(s) to identify potential inequity: Disaggregation allows you to examine inequities in student learning outcomes within sub-populations in your program. See the Guide for instructions on how to disaggregate PSLO data.

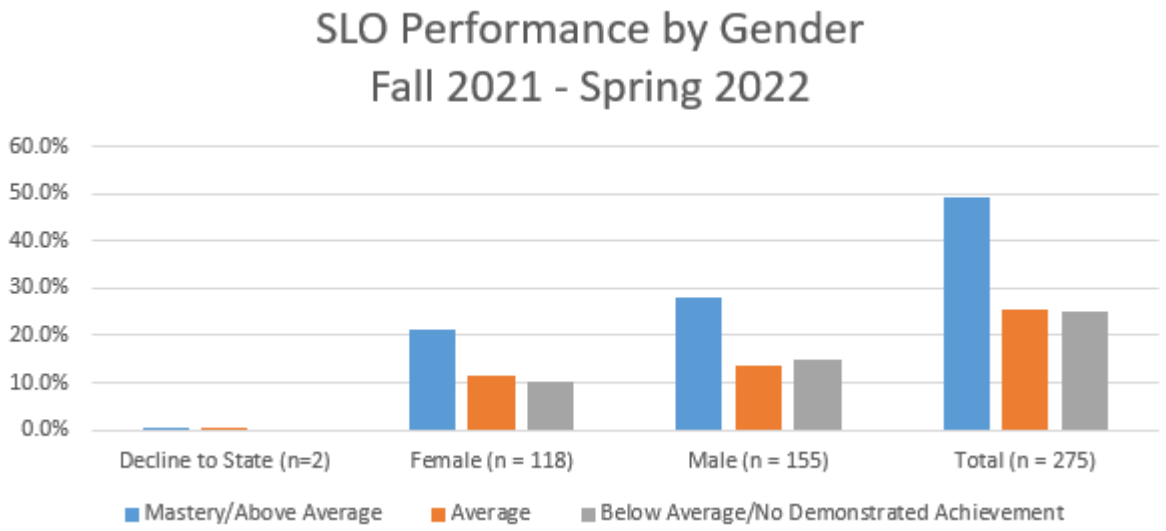
Which variables did you use to disaggregate the data? Mark all the apply.

- Gender
- Age
- Ethnicity
- EOPS
- Veteran
- BOG Recipient
- First Generation
- DE
- Online
- Hybrid
- Fact-to-Face

5) Did your data reveal any patterns of inequity? If so, please explain those patterns.

SLO Performance by Gender for Fall 2021 - Spring 2022:

	Mastery		Above Average		Average		Below Average		No Demonstrated Achievement		Total Enrolled Students
Decline to State	1	50.00%	0	0.00%	1	50.00%	0	0.00%	0	0.00%	338
Female	28	23.73%	30	25.42%	32	27.12%	16	13.56%	12	10.17%	338
Male	36	23.23%	41	26.45%	37	23.87%	23	14.84%	18	11.61%	338



In the previous semester, we only focused on disaggregation by Ethnicity, but we would also like to examine the gender gap for Calculus. Looking at the "n" values, we note that the ratio of the sexes (as recorded) is .76 to 1 (female to male), and we would like to see this get closer to 1 to 1.
About 7% more male students achieved the Mastery/Above Average score than females.
About 2% more male students achieved the Average score than females.
But for the Below Average/No Demonstrated achievement categories, about only 10% were female and 15% were male. Since this is one of the first times we've recorded this data, we don't have much to compare it to, so we'll continue to monitor in future Program Reviews, but the differences in achievement is not as vast as we feared it would be.

Ethnicity:
We wanted to look at how the demographics at LPC compared to what we were seeing in our Math 1 class, just as an overview.

LPC: Fall 2021

Race-ethnicity		
African-American	312	4%
Asian-American	1,371	19%
Filipino	382	5%
Latino	2,231	30%
Native American	17	<1%
Pacific Islander	41	1%
White	2,287	31%
Multi-Ethnic	595	8%
Unknown	136	2%

LPC: Spring 2022

Race-ethnicity		
African-American	263	4%
Asian-American	1,268	19%
Filipino	350	5%
Latino	1,932	29%
Native American	15	<1%
Pacific Islander	39	1%
White	2,056	31%
Multi-Ethnic	529	8%
Unknown	113	2%

Math: Fall 2021

Math: Spring 2022

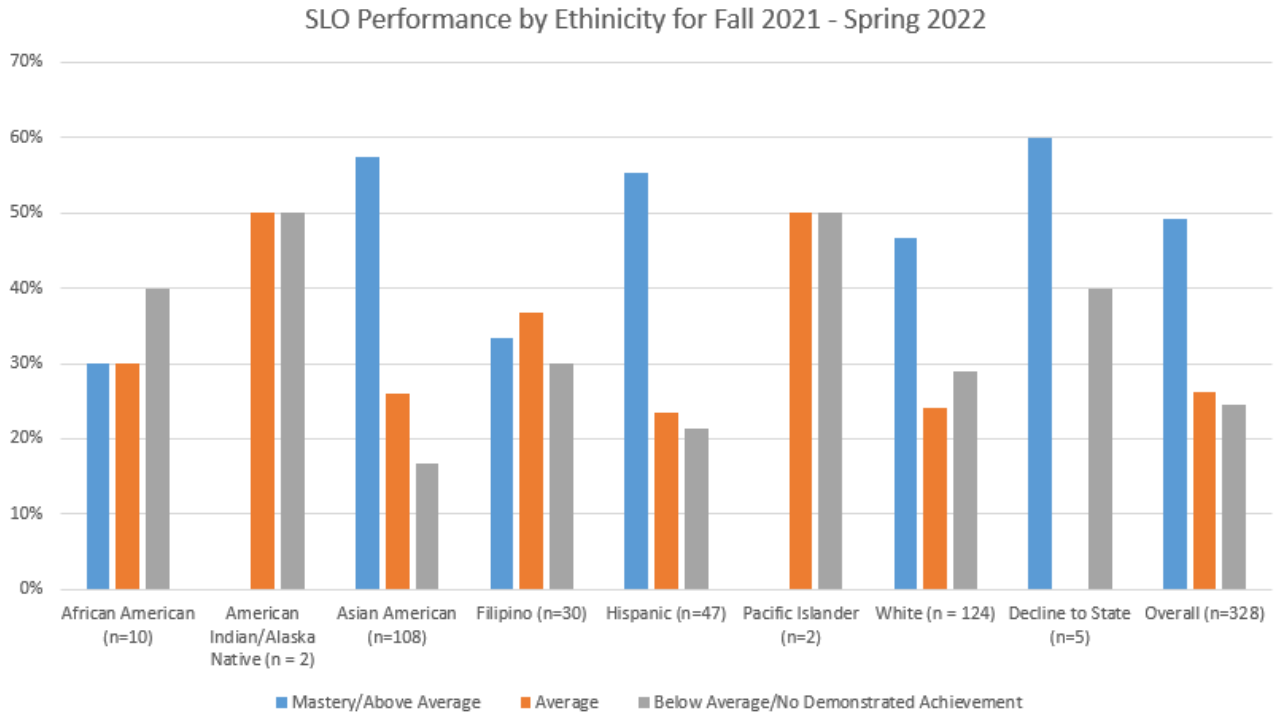
Fall 2021	% Enrolled
African American (n = 2)	1%
American Indian/Alaska Native (n = 0)	0%
Asian American (n = 60)	33%
Filipino (n = 14)	8%
Hispanic (n = 28)	15%
Pacific Islander (n = 2)	1%
White (n = 76)	42%
Decline to State (n=2)	1%
Total (n = 182)	100%

Spring 2022	% Enrolled
African American (n = 8)	6%
American Indian/Alaska Native (n = 2)	1%
Asian American (n = 48)	34%
Filipino (n = 16)	11%
Hispanic (n = 19)	13%
Pacific Islander (n = 0)	0%
White (n = 48)	34%
Decline to State (n = 3)	2%
Total (n = 141)	100%

Over the course of Fall and Spring, it appears that the proportion of enrollment in math 1 to the proportion of enrollment at LPC is roughly the same for African American, but this is not the case for Hispanic students where we see a lower percentage for enrollment in Math 1 vs. LPC and for Asian-American and white students where we see a higher percentage for enrollment in Math 1.

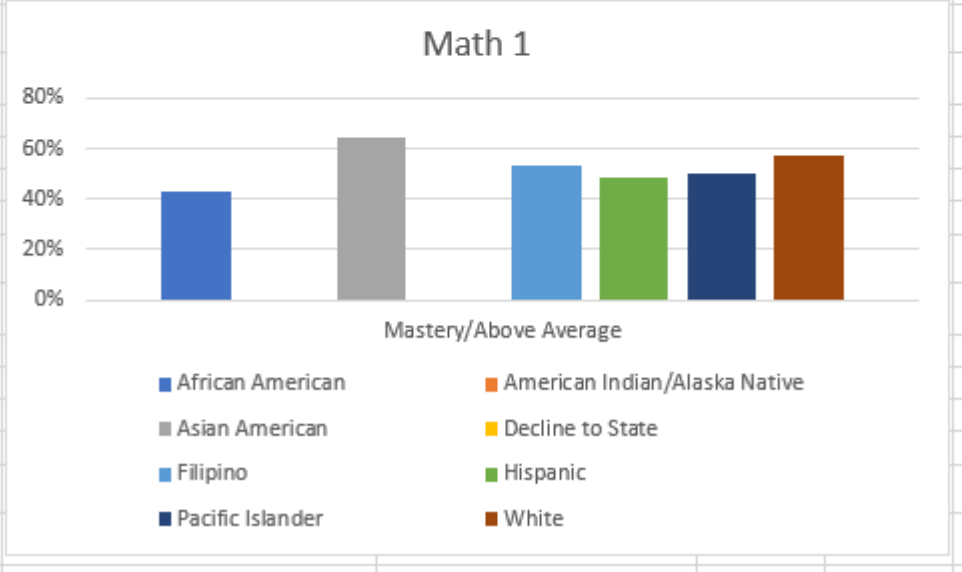
SLO Performance by Ethnicity for Fall 2021 - Spring 2022:

	Mastery/Above Average
African American (n=10)	30%
American Indian/Alaska Native (n = 2)	0%
Asian American (n=108)	57%
Filipino (n=30)	33%
Hispanic (n=47)	55%
Pacific Islander (n=2)	0%
White (n = 124)	47%
Decline to State (n=5)	60%
Overall (n=328)	49%



From the previous year, we found the following data for the Math 1 SLO that fed up to that PSLO:

Math 1			
Ethnicity	**Mastery/Above Average**	**n(E)**	**N**
African American	43%	3	7
American Indian/Alaska Native	0%	0	2
Asian American	65%	62	96
Decline to State	0%	0	0
Filipino	53%	8	15
Hispanic	49%	17	35
Pacific Islander	50%	3	6
White	58%	60	104



From F2020 - S2021 year to F2021 - S2022, every group has taken a dip in achievement with the exception of the Histapnic students who went from 49% to 55%. The modes of classes and faculty teaching did not vary overly much outside of a return to a couple of in-person classes during the most recent academic year, so it appears that the challenging nature of this topic and the minimal coverage at the end of the semester may be the cause of that dip.
As for inequities among the groups, it is clear that our African American and Filipino students are underperforming compared to the Asian American, Hispanic, and White groups.
We are pleased to see that the Hispanic students appear to be closing the equity gap compared to the Asian-American and White student populations. There has been a concerted effort on campus to aid in this progress and the results here demonstrate its effectiveness.

6) Identify any challenges facing your department that may contribute to inequitable outcomes as revealed by your disaggregated PSLO data. (Refer to section 1B if needed)

While we do see inequities in the data, due to the small “n” value for a lot of these population groups, including African-American students, it’s hard to get an accurate assessment of skills.

Similarly, even though our Hispanic students are closing that equity gap in Math 1, the percentage of Hispanic students who enroll in Math 1 (13-15%) vs. the percentage of Hispanic students enrolled at LPC (29-30%) is eye-opening.

Math is working with Puente and Umoja, for both STEM and SLAM pathways, to create Math cohorts in much the same way English does. However, most of the cohorts start with math 30 and work their way up to Calculus, so it will be a few semesters before we see the effects of this outreach.

In the meantime, we would like to see more outreach to students of color to join LPC's STEM pathways in other ways as well. We don't know what that outreach looks like, but would be happy to work with interested parties to find a solution.

7) Based on discussion with others in your program, explain potential changes that will improve student learning and address inequities identified through analysis of disaggregated PSLO data.

Regarding plans for improvement of SLO scores overall:

- Find ways to integrate the topic into more of the course so it is not rushed at the end. This will take some departmental collaboration as the topic is somewhat self-contained.
- Communicate with the students that instead of memorization of the categories, a more hands on diagramming approach helps retain the information and will prepare them more for variations on the question.
- Instead of spending time at the beginning of the semester on precalculus review, perhaps do more integrated review as those topics are needed in order to leave more time towards the end of the semester to explore this topic.

A general note on helping inequities is working on doing more of that just-in-time remediation to help students who may not have been as well prepared as others before joining the class.

8) The 2022-2023 Academic year is the last year in our 3-year assessment cycle. Please review your 3-year plan and verify that all of your courses will be assessed by June 2023.

Will all of your courses be assessed by June 2023?

_X___Yes _____No

If not, please update your 3-year plan to include any courses you missed or if you plan to revise your 3-year plan, then send your updated plan to the Curriculum and SLO Specialist, and the SLO Chair.

9) Are you planning on updating any CSLOs or PSLOs?

_____YES ____X_____NO

(If yes, then you may do this through eLumen, see the SLO Handbook if you need instructions on how to do this.)

10) If you experienced any challenges in completing your PSLO assessment process please list those in the box below along with any items that would help you improve this process in the future.

C2: Instructional Programs With CSLOs - Departments without degrees, non-major courses, and/or other courses up for assessment

1. Based on your current 3-year plan, list the CSLO(s) for the academic year 2021-2022 that your program selected to review and explain why these were chosen.

2. What percentage of faculty completed the planned assessments for the selected CSLO? (run Faculty Participation report from last year). _____%

3. Using the CSLO data and reflection questions, what are some conclusions?

4. List changes that you plan on making to improve student learning.

5. The 2022-2023 Academic year is the last year in our 3-year assessment cycle. Please review your 3-year plan and verify that all of your courses will be assessed by June 2023.

   Will all of your courses be assessed by June 2023?

____Yes _____No

If not, please update your 3-year plan to include any courses you missed or if you plan to revise your 3-year plan, then send your updated plan to the Curriculum and SLO Specialist, and the SLO Chair.

6. Are you planning on updating any CSLOs?

_____YES _____NO

(If yes, then you may do this through eLumen, see the SLO Handbook if you need instructions on how to do this.)

7. If you experienced any challenges in completing your CSLO assessment process please list those in the box below along with any items that would help you improve this process in the future.

C3: Non-Instructional Programs (SAOs)

1. Based on your current 3-year plan, list the SAO(s) for the academic year 2021-2022 that your program selected to review and explain why these were chosen.

2. What percentage of staff completed the planned assessments for the selected SAO(s)? (run Faculty Participation report from last year). _____%

3. Based on discussion with others in your area: Using the SAO data and reflection questions or other sources of data, what conclusions can be made?

* If you used other sources of data, briefly explain below.

4. List changes that you plan to improve outcomes in your service area.

5. The 2022-2023 Academic year is the last year in our 3-year assessment cycle. Please review your 3-year plan and verify that all of your courses will be assessed by June 2023.

   Will all of your courses be assessed by June 2023?

   ____Yes _____No

   If not, please update your 3-year plan to include any courses you missed, or if you plan to revise your 3-year plan, then send your updated plan to the Curriculum and SLO Specialist, and the SLO Chair.

6. Are you planning on updating any SAOs?

   _____YES _____NO

   (If yes, then you may do this through eLumen, see the SLO Handbook if you need instructions on how to do this.)

7. If you experienced any challenges in completing your SAO assessment process please list those below, along with any items that would help you improve this process in the future.

Note: There is an opportunity to give feedback on the PR template on the last page if you won't be completing the next sections

Section Three: Guided Pathways & Curriculum Review

(Programs with Courses Only)

For assistance with these questions, contact the Curriculum Committee Chair

Part One: Guided Pathways: Your program's work with guided pathways

A. Program Maps - The Program Maps (degree and certificate course sequences) are found in Academic & Career Pathways

Up-to-date Program Maps are used by students in your pathway, for data collection to support in-reach to students in your Pathway, predictive scheduling recommendations for Discipline Plans, and may influence the allocation of FTEF.

Please compare each Program Map to your current course offerings and course sequencing. Pay close attention to prerequisite information and to classes that may only be offered particular terms.

1) Are your Program Maps accurate?

Yes, the Program Map for Math ADT is accurate.

Part Two: Curriculum Review

For assistance with this section, contact the Curriculum Committee Chair.

The following questions ask you to review your program's curriculum. To see the last outline revision date and revision due date follow the directions below:

1. Log in to CurricUNET
2. Select "Course Outline Report" under "Reports/Interfaces"
3. Select the report as an Excel file or as HTML

A. Title V Updates [Curriculum Committee]: Do you need to update any courses to stay within the 5-year cycle? List courses requiring updates below.

Reminder: updates to course title or units, and course deactivations, will require updating any program they are associated with. List programs requiring updating in question (C).

_____YES ____X_____No

Course Name & Number

B. Degree/Certificate Updates [Curriculum Committee]: Do any programs require modification in this cycle? If yes, list them below.

Reminder: Program modifications sent to the Curriculum Committee for approval require an updated Program Map. For mapping and curriculum support please contact the Curriculum & SLO Specialist.

___X__YES _____No

Certificate or Degree
Both the A.S. and Certificate in Welding Technology require updating because of the course deactivations outlined below.

C. Are there any courses or programs for which a non-mandatory update is planned?

Reminder: Program modifications sent to the Curriculum Committee for approval require an updated Program Map. For mapping and curriculum support please contact the Curriculum & SLO Specialist.

_____YES ____X____Not at this time

If yes, explain details, rationale, or any support that might be helpful to the committee.

D. Does your program plan to create any new courses or programs this year?

*Reminder:: New program proposals require a Program Map for Senate approval. Please **contact the Curriculum & SLO Specialist** **if you are planning a new program.***

_____YES ____X_____No

If yes, please provide details and the rationale

E. Are there any courses that you plan to deactivate or sunset?

__X___YES _____No

Course Name & Number
Math 53A, 53B, 72A, 72B, 72C, & 72D have all been deactivated, effective Fall 2022
MATH 29 Independent Study, Mathematics

Program Review Suggestions (optional): What questions or suggestions do you have regarding this year's Program Review forms or process?
