

## **Administrative Response to Math's Program Review April 19, 2019**

On Friday, January 25, 2019 the Math SAC presented their Program Review findings to an audience of PCC administrators and others with an interest in the discipline. The presentation was informative and thought provoking. It provided an opportunity for engagement with those in attendance through an informative and interactive dialogue with faculty and students. The presentation provided a rapid list of topics highlighting the current state of the program.

This Administrative Response will: A) note particular highlights of the Math program and Program Review; B) provide observations and recommendations; and C) provide the administrative response to the SAC recommendations/resource requests.

### **Noteworthy Efforts or Achievements**

- The Math SAC produced a well-orchestrated, rapid, and engaging program review presentation that demonstrated the variety of talent and commitment our faculty bring to the Math program and to student success.
- Math reform efforts include building the Math 58/98/105 alternative pathways; building ALC/ALM to extend through the 200 level Math courses; shortening math pathways and reviewing prerequisites; tightening up CCOGs in each course; creating multiple-measures placement; and addressing under-placed students in Math courses.
- The reduction in cost for students include providing Open Educational Resources (OER), most notably the ORCCA project, and eliminating the need for graphing calculators.
- The great work in making the ORCCA materials accessible using PreTeXt with WeBWorK.
- Exploring instructional strategies like flipped classrooms to increase student success.
- Incorporation of student voices about their experience with Math at PCC.
- The SACs continued demonstrated commitment to Diversity, Equity & Inclusion.

### **Observations and Recommendations**

- We appreciate and commend the SAC for the time and thought that have gone into developing the **Standards statements** emphasizing the importance of formatting in math and providing clarity around the “closed book no-note exams.” We encourage you to find a prominent place in the CCOGs where both faculty and students can easily find the statements. This is especially important for Dual Credit, where we need to give strong and clear instructional direction in our CCOGs, especially when this may run counter to some standard secondary education teaching strategies.
- We appreciate the discussion of concerns about the **Gen Ed revision and assessment**. There are indeed a lot of unanswered questions as to how exactly this will work, how much time it will take, how much support for faculty might be available, and the value it will have with regards to improving teaching and learning. There is plenty of room for angst, but not for inaction. We know that our current SAC-based assessment practices have not been effective at assessing our institutional outcomes, and after years of trying to imagine alternative approaches, the current direction seems the most promising – but it is indeed

something that will take some time, effort, compromise, tolerance of ambiguity, and, yes, angst. All of these can be productive – seeing the problems and working to overcome them. The approach of using Gen Ed to assess institution-level outcomes has allowed SACs to focus efforts on assessments that are most meaningful to them. Interesting assessments that the MTH SAC described in the Program Review would not have been possible if we were still relying on the SACs to assess Core outcomes. While the Quantitative Reasoning assessments may not be drawn from a sufficient number of MTH sections to direct specific improvement to teaching and learning for MTH, results may shed light on how well students are able to apply mathematical skills to the whole set of Science, Computer Science and Math Gen Ed courses. Given the SAC’s clear interest in the success of mathematical instruction for students embarking on a variety of disciplines, this seems potentially very useful. Additionally, the regular meetings of the DSAC groups themselves have value for understanding common as well as specialized disciplinary needs. That said, we appreciate that MTH does have a representative on the DSAC, and hope that the work in the DSAC will inform PCCs instruction in mathematics in a positive way.

Finally, changes in thinking about Gen Ed, both at PCC and statewide, along with Guided Pathways work, suggests that some courses that are currently on our Gen Ed list may not really need to be. Students can generally only use 2 MTH courses to fulfill specific requirements for any of our degrees, so some consideration of which MTH courses are best suited to Gen Ed, and would be most likely to be used by students, would be appropriate.

- We appreciated the informative and detailed description of the MTH SAC’s **assessment** activities over the last several years, and in particular, the investigation of the retention of specific skills and how well students are able to bring that preparation into subsequent coursework (CTE and calculus in particular). While the results of assessments in both cases were disappointing, the subsequent action, to develop specific and focused interventions for the MTH 112 / MTH 251 transition is laudable. It would appear from comments in the PR that the interventions have not yet been deployed, but we would hope they will be soon and we look forward to seeing the results of reassessment to determine whether the interventions were successful. One concern is that if the interventions are only used in courses taught by the MTH LAS, the results will be less valuable than if the SAC, as a whole, would consider a broader adoption of focused improvements.
- We look forward to supporting your ongoing work towards closing the opportunity gaps. Keeping your commitment to building awareness and capacity with culturally responsive teaching and pedagogy by intentionally including diversity, equity and inclusion training as part of your SAC meetings is a core component of equitable student-success. We must continue to explore what it means to “decolonize” the curriculum with the recognition that our students will need the skills to be successful in a Western-based culture and in other Western-based academic and career-based programs.

### **Administrative Response to Recommendations & Resources**

As you noted in your program review document, while so much good work has happened, there is still work to be done. We know you will need support to do this work. We know you are aware that a YESS Math work group was formed to bring together a cross-sectional, cross-disciplinary group of faculty and staff to explore and investigate the challenges our students are facing with Math, and ultimately to forward recommendations aimed at narrowing

or eliminating opportunity gaps. The charge of that group was to use their collective and varied experience in supporting students, particularly with regard to Math, to ‘zoom out’ and look at the challenges through a broader perspective. To that end, they have reviewed data and reports regarding the successes and failures of Math initiatives in community colleges across the country, examined PCC data in particular to find our greatest needs and our greatest strengths, and reviewed the Math Program Review documents to ensure that they knew what was already going on in math and that the recommendations of the Math YESS work group parallel and support the recommendations of the Math SAC Program Review.

The YESS Math work group included members of your SAC, who have done an excellent job in representing the great work the SAC has done. They have also been an extension of your great advocacy. The recommendations are not yet final, but we know they will include support for faculty development, a recommendation around a customized data report for continual analysis of math student success outcomes, recommendations surrounding advising and placement, and recommendations around curriculum and pathways that appear to be in alignment with the Program Review recommendations addressed below.

The recommendations will be presented to the YESS Steering Committee, who will determine next steps. Any recommendations involving Math curricula, pathways, or SAC specific work will be sent to the SAC to review and respond to the YESS Steering Committee with a scope of next steps. To be very clear, this work is not intended to “override” the SAC, but to be complementary to the SAC’s work in closing the opportunity gaps. With the student-centered lens you have anchored your work in over the last five years, we are confident that you will see this as an extension of your efforts that will bring more resources to helping close the opportunity gaps.

While funding at the College is limited over the next biennium, we will be attaching YESS funds to specific training, faculty development, and meeting participation that is directly tied to the recommendations. This may not include conferences that individual faculty are interested in, but it will expand development, training and SAC participation. It is because the work of YESS and the work of the MTH SAC are so closely tied, that it is expedient to address a little of what is going on with YESS as we address the recommendations of the Math SAC Program Review.

## **Recommendations:**

### A. Support for Faculty

1. *The Math SAC recommends more training of faculty on innovative teaching strategies like “just in time” teaching, flipped teaching models, the POGIL method, culturally responsive teaching strategies, and facilitating group work. With the awareness of culturally responsive teaching, many instructors are using more class time for group work and flipping classes so that students work together for much or most or even all of the class time. These innovations help students build relationships with each other*

*and be more engaged, but also come with challenges in small-group and interpersonal dynamics. Many math instructors are interested in developing skills to better facilitate these small groups in order to create a supportive and productive environment and increase success. Additional instructors may be willing to move toward group-centered classes if they had more training and support.*

As indicated above, there will be a recommendation with the YESS Math work group centering around professional development for Math faculty. You will have an opportunity to provide input on what the development needs to be focused on and how this gets implemented and measured.

- 2. The Math SAC recommends that the college provide more funding for part-time faculty to participate in SAC activities, attend trainings, and access professional development opportunities. Our part-time instructors are teaching more than half of our sections: in order to empower them to provide the best experience for our students, they need to be just as familiar as full-time instructors with college policies and practices, curricular changes, and pedagogical techniques. Currently, no planning time is provided for major curriculum changes or for training or course-revision in order to integrate culturally responsive practices into class activities. Our part-time instructors need to be compensated for the increased planning time to integrate culturally responsive practices into their lessons. This affects the quality of the mission, the vision of YESS, and planning and delivering a world-class education for the College overall. We request additional funds be made available for part-time faculty involvement in, and for, SAC related activities. This may include efforts such as increasing the frequency and/or the amount of funds awarded to part-time faculty who attend SAC meetings, increasing the funds available via POD for conferences, supporting the growth of MYC faculty, and paying part-time faculty for their time spent doing committee work for the SAC. For part-time faculty, getting to know other instructors and having time to discuss practices and experiences is necessary for improvement but often challenging. A structured means for instructors to meet, such as level teams and book groups, is extremely helpful. A structured means to get full-time and part-time Instructors together to discuss teaching will benefit everyone.*

We recognize that part-time faculty need access to more funding for training and being included on the change the SAC has been making and why. They need to be involved in learning about the opportunity gaps and understand how their practice and pedagogy can help change those outcomes for the better. This will likely be included in the YESS Math work group recommendation. Additionally, POD funding will continue to be available for faculty to apply for as development opportunities arise.

3. *The Math SAC recommends that the college provide faculty with training on learning assessment and on the requirements of the soon-to-be-remodeled General Education program. Our SAC has excelled and won awards for our Learning Assessment work, but we struggle to maintain faculty interest in the College's learning assessment projects; this year, no one in the SAC has volunteered to participate in the Learning Assessment Subcommittee. SAC members have grown exhausted by the effort and time required by the learning assessment because we haven't seen benefits proportional to the effort invested from our previous learning assessment projects. Our SAC has great concern about the future of Learning Assessment and General Education courses. There are currently about 15 MTH courses on the General Education List: our faculty will need training on how to create assessments that will satisfy the requirements of the future General Education program in a way that remains meaningful to our students and SAC. We have a great number of instructors who teach courses on the General Education list, all of whom will be expected to give their students an assignment that satisfies the General Education requirements; this prospect is overwhelming, so we are going to need support to be successful in this endeavor.*

This will be a need for disciplines across the college. We appreciate you emphasizing this as a recommendation. In the short term, we are looking for funding to support the assignment design work needed to support Gen Ed approval. We are a couple of years away from knowing the specifics about what Gen Ed assessment will look like and how the results can be fed back to inform teaching and learning for all of the the Core/GenEd outcomes. Results from assessment of Quantitative Reasoning may be of particular interest to math faculty. At the SAC-level, with annual assessment focused on outcomes of the SACs choosing, we hope that the work will be more directly meaningful and impactful for instruction in mathematics. We have appreciated your commitment to excellence in this work. We will work with you on how to support the Learning Assessment work as the new Gen Ed reform solidifies.

4. *The Math SAC recommends that the college hire more full-time faculty. Improving the ratio of full-time to part-time faculty is a consistent request but we ask again that this request is considered. The quantity of SAC work has increased as more administrative and support tasks are falling to instructors, but the number of full-time faculty has decreased. Completing the requested workload is challenging and frustrating.*

We recognize the need to hire more full-time faculty in all of our disciplines, especially in the disciplines that offer gateway courses. We will continue to assess our ability to hire more full-time faculty when there are opportunities to do so. The needs to hire full-time faculty will continue to be balanced with our fiscal ability to do so.

B. Support for Students from outside a Math SAC

1. *The Math SAC recommends that the Testing Centers offer more testing hours. Currently, testing resources are limited and unbalanced from one campus to another. In particular, the Cascade Campus Testing Center offers only three days during the week when a student can schedule to take an exam; the Sylvania Testing Center is the only campus offering a weekend testing time; and the Southeast Testing Center is the only campus with an evening testing time -- Wednesday evening at Southeast is the only evening testing option at a PCC campus. This limited testing support can be very challenging to our students who are often navigating busy schedules of their own: they need options at all of our campuses including times in the evening and on weekends. Effective Winter 2018, Online Learning implemented new requirements for instructors teaching online courses regarding proctoring options for students, but our Testing Centers don't have sufficient funding or staff to support the increasing need for proctored testing. The Math SAC recommends that the College increase the make-up testing opportunities at all campuses, especially with regards to testing times at Cascade Campus and evening and weekend testing times throughout the district. The SAC also recommends that a greater effort is taken to involve stakeholders (like Math faculty) in the decision--making process that leads to the policies and practices of the testing centers.*

\*Please note, the Testing Center at the Rock Creek campus is open on Tuesday evenings. We have shared your recommendation with Rob Steinmetz, the Vice President of Student Affairs. He has shared this with the District Deans of Student Development, the stakeholders who oversee the campus-based Testing Centers. We appreciate your district-based approach to assessing the needs to support students.

2. *The Math SAC recommends college-wide support for MTH 58/98. There are still courses at PCC that should include MTH 58/98 as a prerequisite but do not. This oversight prevents MTH 58/98 from being a viable option for nearly all degrees and certificates despite the inclusion from many degrees and certificates themselves and the support and acceptance from Departments across the college. This oversight is simple to fix, but takes knocking on doors both within PCC but also at institutions outside PCC. This oversight prevents students from being successful in their math coursework. The College should offer support to increase enrollment in MTH 58/98 as a viable pathway for students, particularly those who will need statistics for their degree or certificate. The college should offer support from other STEM and non-STEM Departments to add MTH 58/98 as a prerequisite for any course not requiring calculus. The Math SAC senses that, initial support for MTH 58/98 has waned and the responsibility has fallen too heavily onto Math faculty to knock on*

*doors or push non-STEM pathways at other colleges and internal courses. PCC's advising department should help recruit more students into MTH 58/98. The administration should put in the effort required to motivate PCC programs and SACs to change math requirements to include MTH 58/98 so advisors can make this recommendation responsibly. This could be the single biggest way to move towards our goal of equitable student success.*

This is a must-do recommendation. We realize the Math SAC has done the work to create the alternative non-STEM math pathway and it is being underutilized. This has also been a major discussion point in the YESS Math work group. There will be a recommendation that supports solutions to getting students who don't need the algebra pathway into the non-STEM math pathway. We agree it could be the single biggest way to decrease the opportunity gaps and impact equitable student success positively.

- 3. The Math SAC recommends that the college reconsider the placement levels used for new students and to give adequate support to students who are placed into their highest course but might have weaknesses/holes in prerequisites. Many Math faculty are concerned that the changes to the placement system have resulted in students receiving incorrect placement, so we ask that the College reconsider the levels that students are being placed in. Given the increased complexity of the placement system (which is designed to place students into the highest math course they are logically prepared for), mandated advising for students placing low in the math sequence, and a new non-STEM math pathway, the burden on advising has increased multiplicatively. To best increase success, students need access to extend advising hours and an improved advisor-student ratio.*

We recognize that while the changes to placement switched us from a deficit model that under-placed students to an asset-based model that may be over-placing students. While we are seeing more students complete a college level math course, we are also seeing students fail more math courses. We agree that the value of advising is a significant just-in-time resource for students as they register for a Math class. We believe that Advising Redesign will be significant in helping get students in the right Math course and/or help students adjust within the first week of the course if there is a need. The placement data also shows a significant difference in student success between our 18-24 year olds being placed vs. our 25 and older students being placed. The YESS Placement work group has created a sub-committee that includes student services and math faculty, to look at Advising and Placement for Math. We agree that this is a priority. There is work in progress happening to support this recommendation.

4. *The Math SAC recommends that the college reconsider the Week 1 drop deadline. The College should revisit the Week 1 drop deadline and examine the negative impact on students. We suspect that the Week 1 drop deadline negatively impacts marginalized student populations more than others and recommend the College consider a three-week step-down refund policy similar to PSU's refund policy.*

The week one drop deadline is in place to facilitate the earliest disbursement of financial aid to students while meeting federal regulations for confirming student attendance. However, our Enrollment Management team has been working with math faculty, advisors and students to move students into a different Math course well-beyond week one to support student success. Students have been moved as late as week 3 or 4 in the term with faculty support. In terms of a refund policy, we will share your recommendation with the Dean of Enrollment Management.

### C. Support for Instructional Tools and Classroom Design

1. *The Math SAC recommends that the College continue to provide support for the adoption of Open Educational Resources (OERs) for math and other disciplines. Two of the goals in PCC's mission statement are equity and quality education: one of the quickest ways to help achieve these goals is to increase the usage and support of OERs. Students regularly make their voices heard that too often they are burdened with expensive textbooks, which they may only lightly use. Students have to decide each term whether to buy books in place of utilities, food, or maybe even rent. And certainly, studies show that OER's increase the number of courses students can afford, and this seems to increase the number of students enrolled full-time. Numerous OER materials across disciplines already exist and can be implemented by instructors in one term, yielding an immediate improvement in equity in access to materials. The college should continue to actively and strongly support grants and funds that allow faculty to create OER material; whether it be full books, online content or otherwise. This in turn will allow cross-campus collaboration, encourage dialogue and faculty communication about classes, and allow PCC to be a leader in the development and use of OER materials.*

The Math SAC has done GREAT work addressing the costs to students taking math at many levels, including through building OER materials, securing reduced cost materials from publishing companies, and eliminating the requirement for graphing calculators. In general, we will continue to support this work. For specific funding asks or grant support, please make sure you put together requests through your SAC Administrative Liaison and your Division Deans so we can budget and plan for the support needed.



- 2. The Math SAC recommends that the college increase the availability of ALCs and/or corequisite tutoring sessions. Many of our students need extra support. The Student Learning Center is an invaluable resource, but for some at-risk students, it is not enough. In order to succeed in their math pathway, students need to attend an extra class to fill in gaps in their learning while simultaneously taking their regular math class. The co-requisite model is gaining traction on the east coast. We want to increase the availability of ALC's and explore other corequisite models in order to better join in this innovative national effort.*

We see that ALC is working for many students, and we believe this is part of our YESS work to support students. There will be a recommendation from the YESS Math work group regarding ALC, though it is more likely to include targeted co-requisites for specific at-risk situations rather than across the board mandatory co-requisites for all students. As a result of the intentional build out of the ALC/ALM courses, the Southeast campus is budgeted to add an ALC/ALM lab in the next biennium.

- 3. The Math SAC recommends that the College create more computer classrooms or purchase more Chromebook class sets. The Math SAC recommends that each campus convert more classrooms into computer labs or purchase more class sets of Chromebooks in order to support innovative and effective methods of instruction like flipped classrooms and employ technology like Desmos, GeoGebra, WeBWorK, Connect, and Excel.*

This is something we could work to support if there were an analysis of what was needed and where. Please work with your Division Deans at your campus to identify needs related to computer classrooms and chromebooks for classrooms. If there is a specific district-wide need, please organize that and present it to your SAC Administrative Liaison to bring forward to the Academic Affairs council. There may also be an opportunity to explore co-scheduling a computer lab and a Math class in a general purpose classroom. With coordinated scheduling, these types of classrooms could be shared with other math classes. This is currently done with other disciplines and works extremely well. Please consult your Division Dean and Campus Scheduler to discuss potential options.

- 4. The Math SAC recommends that the college increase the number of classrooms with tables for group work and computers around the perimeter. More and more instructors are integrating group work into their classrooms, and MTH 58/98 require group work explicitly. It would be convenient to organize some classrooms into groups instead of the traditional desk-forward layout. Currently, only Southeast Campus and Rock Creek campus have classrooms dedicated to math instruction in groups where students do not need to move tables and chairs each day. The Math SAC recommends more classrooms dedicated to group-work-based instruction. If computers were installed around the*

*perimeter, the classroom could function both for group-work and for computer/online work.*

We support this recommendation. We may see even more of a need for this classroom furniture arrangement as we embark upon faculty development if it focuses on group-based learning. Please make sure each of the campus Math Department Chairs work with their Division Deans, Deans of Instruction and Campus Scheduler to identify potential rooms and demand for this type of classroom setup.

D. Support for the Student Social Safety-Net

*The Math SAC recommends that efforts are taken to address students' basic needs. The Math SAC supports President Mitsui's call for student housing and encourages the college to look critically at this and other basic needs for students. The Math SAC suspects that students not only need added support and programs that could be cost-neutral, like creating student housing or disseminating Food Pantry items into classrooms, but students are also hindered by negatives that might silently prevent students from success: the Week 1 drop deadline; multiple student support mandates for students to achieve before progressing in their academic pursuits; tight deadlines and poorly-advertised financial resources lead to deletion for non-payment unnecessarily; transportation obstacles including parking fees and fines can cost more than books. As experts in fractions, we worry that improved ratios might accidentally come from decreasing the number of marginalized students from denominators instead of increasing the number of marginalized students in numerators.*

This recommendation demonstrates the Math SAC's compassion and commitment to equitable student success. We will share this recommendation with the YESS steering committee as it relates to the YESS work with Pathways to Opportunity. This recommendation encompasses a breadth of barriers our students face that PCC could approach systemically.

### **Closing**

In closing, we want to commend the total investment the Math SAC has made toward Math reform for the sake of student success. It is evident that you have spent thousands of hours collectively invested in addressing many opportunities to help students be more successful. You have: created an alternative Math pathway; created accelerated learning opportunities for students and are building a possible co-requisite structure; designed and discussed a common rubric; flipped classrooms; embedded tutors; put together CCOG teams to continually analyze the curriculum; eliminated some barriers with prerequisites; included DEI in every SAC meeting, and changed the placement system. The amount of work you have demonstrated is impressive and our students are benefitting from your hard work in and out of the classroom. We want you to know that we appreciate all of your work and value your commitment to doing what is best for students.

We acknowledge there is still a lot of work to be done and we are committed to supporting you as you narrow your focus to what will make the greatest impacts towards equitable student success. There are important and good practices being utilized, but not in a systematic manner across all the curriculum--we hope that in the coming years the MTH SAC will focus in on those proven to be most universally successful. We believe that the work of the Math SAC *is* the work of YESS, and that the professional development requested by the Math SAC and supported through YESS will translate in the coming years to real gains in student success.

We are proud of how you have kept the student in the center of your discussions, debates, research, and efforts to push one another to embrace the change needed and to be leaders in your work today and in the future. Thank you for an excellent program review document and presentation.

Administrative Response submitted by Jennifer Piper, on behalf of the Deans of Instruction and Dean of Academic Affairs.

Kendra Cawley, Dean of Academic Affairs  
Jen Piper, Dean of Instruction Southeast Campus  
Karen Paez, Dean of Instruction Sylvania Campus  
Cheryl Scott, Dean of Instruction Rock Creek Campus  
Kurt Simonds, Dean of Instruction Cascade Campus