LMC Comprehensive Program Review

Instructional Units

2017-2018

Program/Discipline: Mathematics (Transfer) 1/31/18

The following provides an outline of the required elements for a comprehensive unit/program review for Instructional Programs and Units. Upon completion of this report, please upload your document in the unit/program review application data/documents tab.

1. Program Changes

1.1. How have your degree and certificate offerings changed over the last 5 years? (e.g. new programs, discontinued or major changes to existing programs)

We have not changed our degree and certificate offerings in the Transfer Math program.

1.2. What changes are you planning to your degree and certificate offering over the next 5 years? What is the rationale for the anticipated changes? Will these changes require any additional resources?

We are not planning changes in the degree and certificate offerings in the Transfer Math program.

2. Degree and Certificate Requirements

Please review the data provided on all degree/certificate completions in your program, including locally approved College Skills Certificates from Fall 2012—Spring 2017.

2.1. For each degree/certificate offered, map a pathway to completion of courses within the major in a maximum of 4 semesters, assuming a maximum of 6-10 units of major courses within a semester. Use the following format:

Mathematics Associate in Science Degree for Transfer				
Semester	Semester 1	Semester 2	Semester 3	Semester 4
Option 1:	**Math 50 (4 units)**	**Math 60 (4 units)**	**Math 70 (4 units)**	**Math 75 (3 units)** **Math 80 (3 units)**
Option 2:	**"Calc path"** **Math 50 (4 units)** **Math 60 (4 units)**	**Math 70 (4 units)**	**Math 75 (3 units)**	**Math 80 (3 units)**
Option 3:	**"Calc path"** **Math 50 (4 units)** **Math 60 (4 units)**	**Math 70 (4 units)**	**Math 75 (3 units)** **Math 80 (3 units)**	

3. Frequency of Course Offerings

Please review the data provided on frequency of all courses offered in your discipline in the last 2 years (Fall 2015-Spring 2017).

3.1. If a course has not been offered in the past two years, but is required for a degree or certificate, please explain why it has not been offered, and what the plan is to offer it in the future.

Not applicable

3.2. If the course is not required for a degree or certificate, is the course still needed in the curriculum or is the department considering deleting it?

Not applicable

3.3. For the next two years, project how frequently your program intends to offer each course. Please provide a rationale for any major changes from the last 2 years that you anticipate.

Course	Estimated Number of Sections Offered by Semester			
	Fall 2018	**Spring 2019**	**Fall 2019**	**Spring 2020**
Math 34	**21 Pitt 9 BW**	**20 Pitt 8 BW**	**22 Pitt 9 BW**	**21 Pitt 8 BW**
Math 37	**2 Pitt 1 BW**	**2 Pitt 1 BW**	**2 Pitt 1 BW**	**2 Pitt 1 BW**
Math 40	**5 Pitt 3 BW**	**5 Pitt 3 BW**	**5 Pitt 3 BW**	**5 Pitt 3 BW**
Math 50	**4 Pitt 2 BW**	**4 Pitt 3 BW**	**4 Pitt 2 BW**	**4 Pitt 3 BW**
Math 60	**3 Pitt 3 BW**	**3 Pitt 2 BW**	**3 Pitt 3 BW**	**3 Pitt 2 BW**
Math 70	**1 Pitt 1 BW**	**1 Pitt 1 BW**	**1 Pitt 1 BW**	**1 Pitt 1 BW**
Math 75	**1 Pitt 1 BW**	**1 Pitt 0 BW**	**1 Pitt 1 BW**	**1 Pitt 1 BW0**
Math 80	**1 Pitt 1 BW**	**1 Pitt 1 BW**	**1 Pitt 1 BW**	**1 Pitt 1 BW**
Math 120	**1 BW**	**1 Pitt**	**1 BW**	**1 Pitt**
Math 160	**1 BW**	**1 Pitt**	**1 BW**	**1 Pitt**

Rationale for any Major Changes

- **Increase in number of Math 34 sections: more students are eligible for Math 34 this semester due to changes in the Developmental Math program. We have decreased the time it takes for students to meet prerequisites and increased the number of ways that students can meet the perquisites for this course.**
- **Math 120 will be offered on the Brentwood campus starting Fall 2018. We will alternate semesters unless demand or enrollment changes.**

4. Existing Curriculum Analysis

4.1. Course Outline Updates

Please review the data provided on the status of COORs in your discipline. (Note: This data does not reflect courses submitted after May 2017.) For each COOR that has *not* been updated since Spring 2012, please indicate the faculty member responsible for submitting the updated COOR to the Curriculum Committee by April 18, 2018.

All of our course outlines for both Developmental and Transfer math have been updated according to the schedule determined by the "cohorts". The last set of COORs was due in 2016-2017 and they have all been completed.

4.2. Course Offerings/Content

How have your courses changed over the past 5 years (new courses, significant changes to existing courses)?	*The only course we have added in the last 5 years is Math 160, Discrete Mathematics. We have not made changes to other courses, except to revise course outlines to align with the C-ID system.*
How have these changes enhanced your program?	*The addition of Math 160, Discrete Mathematics, provides students with an additional option to select from "List B" in the Associates requirements. This course is required of students pursuing computer science degrees.*

5. New Curriculum Analysis

5.1. If you are creating new degrees or certificates in the next 5 years: (Indicate N/A if no new degrees or certificates are planned.)

Not applicable

What additional courses will need to be created to support the new degree or certificate?	*Not applicable*
What significant changes to existing course content would need to be made to support the new degree or certificate?	***Not applicable***

6. Advisory Board Update (For all CTE TOP coded programs)

Give an overview of the current purpose, structure, and effectiveness of your Advisory Board. Include: membership, dates of last meetings over the past two years.

Not applicable

7. Assessment Effectiveness:

7.1. Course Level Assessment

Please review the data provided on assessment status of courses in your discipline in Cycle 1 (2012-2017).

7.1.1. If there were any courses that were not assessed in Cycle 1, please explain why they were not assessed.

We have assessed all courses on schedule.

7.1.2. If a course was not assessed in Cycle 1 because it was not offered, what is the future of that course? **NA**

7.1.3. Course level assessment should be meaningful, measurable and manageable. Overall, reflecting on the course level assessment, please rate the degree to which you feel your assessments meet these 3M's.

In the transfer level math program we offer 10 different courses that serve the needs of students in different majors and hence serve different numbers of students and different populations of students. Therefore our assessment procedures and practices are not uniform across the program and the two campuses.

In our discussions during the Fall 2017 semester we identified some important findings:

- **Our assessments are manageable (3) because we have honed our processes over time. Some courses are one section, which is straightforward for a single instructor to assess. For courses with more sections we are able to scale and work collaboratively.**
- **Our assessments are generally measurable (2-3), with some places for improvement, such as the need for assessment tools such as quizzes to be taken seriously by students. In the case of the calculus assessment students did not necessarily prepare for the ungraded quizzes which make results difficult to interpret in terms of students' understanding**
- **Our assessments are inconsistently meaningful. For example for a course where the assessment was conducted by the faculty member teaching the course, the results were easily utilized for future instruction. In other cases the results were not utilized when the course changed hands. In the calculus assessment it was discovered that we had an issue of alignment between test items and CSLOs. Thus we find that our assessments can be meaningful if we plan our assessments around well-aligned tools and we make sure that all faculty have access to results. Overall we can work on closing the assessment loop.**

Meaningful:

1	2	3
The assessment was not meaningful in collecting data or information that supported course improvement or pedagogical changes.	The intent was understood, but the outcome fell short of meeting the objective of course assessment, which is to improve student learning. The changes to the course or pedagogy to support the course were not clear.	Changes were made to the course content or delivery to improve course effectiveness. The process promoted pedagogical dialog within the department, and changes were adopted accordingly.

Measurable:

1	2	3
The data collected did not inform teaching and learning.	The assessment produced some measurable information, but created more questions than answers.	Results were straightforward and easy to interpret. The course of action to improve the course or its delivery was clear from the data that was collected.

Manageable:

1	2	3
Assessment was not manageable.	The assessment process was somewhat manageable, but posed challenges to implement across the program.	The assessment was easily scaled across the department so that full- and part-time faculty could participate with meaningful outcomes.

7.1.4. What changes in the assessment process itself would result in more meaningful data to improve student learning?

We need a mechanism for sharing findings with faculty who come into a course after an assessment has been done.

The assessment process needs to be redesigned for Math 50, 60, and 70 to better align with COORs, so that results are more meaningful and students take them seriously.

7.1.5. Share an outcome where assessment had a positive impact on student learning and program effectiveness.

An example from Math 80: A change was recommended to update the COOR for CSLO 2, as a result of the assessment process to help improve future instruction, thus closing the loop of the assessment for Math 80.

An example from Math 120: the previous assessment led to a redesign of CSLOs that separated two areas of course content into two CSLOs instead of 1. This change has supported instructional changes that better support students in learning these two areas.

7.2. Program Level Assessment

7.2.1. In 2016-2017, units engaged in program level assessment. **Please submit all Program Level Assessment Reports using the link provided**. Describe one important thing you learned from your program level assessment.

From our PSLO report: "It appears that our calculus pipeline needs improvement at creating proficiency with respect to any PSLOs. These results must stem from a great misalignment between the curricula, the CSLOs and the PSLOs.

7.2.2. What was the biggest challenge in conducting program level assessment?

As this was first time the department assessed the calculus pipeline with respect to the PSLOs, it took many hours to create a PSLO rubric.

7.2.3. What resource needs, if any, were identified in your program level assessment?

The math department wishes to use a "working backwards approach" infused with funded professional development. The math department should first review, then change and/or affirm our PSLOs. The PSLO assessment identified this project as an "Objective" in the next Program Review in order to seek RAP funding. It is emphasized here to support funding requests in the current year. Upon completion of the PSLO project, instructors can then spend much of their assessment energies reviewing the alignment between the CSLOs and the PSLOs, changing the CSLOs as needed and **documenting the analysis, conclusions and changes**. As CSLOs are assessed, there needs to be professional development around developing assessment tools with respect to CSLOs. There also needs to be ongoing professional development around creating and implementing pedagogy and curriculum that aligns with CSLOs.

Our program and course assessment processes as well as program data analysis further identifies a need for focus on the beginning of the STEM math pipeline, Math 26 and Math 40. There is an identified need for curriculum and professional development around these courses especially in the area of trigonometry. There is a need for funding for leadership, teaching community, and time on curriculum development.

8. Course Success/Retention Analysis

Please review the data provided on course retention and success, which has been disaggregated by as many elements as district can provide in their SQL Report

One of our college goals as stated in our Integrated Plan is to "Increase successful course completion, and term to term persistence." Our Equity Plan identifies African- American and low income students as disproportionally impacted in terms of successful course completion. (Foster youth are also disproportionately impacted on this indicator, but numbers are too small to disaggregate by discipline/program) Please indicate how well students in these groups are succeeding in your discipline.

Pittsburg data:

Afr. Am students **Completion**	Number	Percent
Fall 2014	81	70.4%
Spring 2015	103	75.7%
Fall 2015	91	72.2%
Spring 2016	108	74.5%
Fall 2016	123	83.1%
Spring 2017	109	73.2%

Low income students **Completion**	Number	Percent
Fall 2014	613	76.7%
Spring 2015	654	82.8
Fall 2015	643	76.5%
Spring 2016	662	80.4%
Fall 2016	711	79.3%
Spring 2017	722	81.2%

All students **Completion**	Number	Percent
Fall 2014	612	76.9%
Spring 2015	549	79.5%
Fall 2015	649	76.9%
Spring 2016	597	79.6%
Fall 2016	813	80.2%
Spring 2017	701	79.9%

Afr Am students **success**	Number	Percent
Fall 2014	61	53.0%
Spring 2015	69	50.7%
Fall 2015	64	50.8%
Spring 2016	79	54.5%
Fall 2016	91	61.5%
Spring 2017	82	55.0%

Low income students **success**	Number	Percent
Fall 2014	508	63.6%
Spring 2015	522	66.1%
Fall 2015	513	61.0%
Spring 2016	523	63.5%
Fall 2016	552	61.5%
Spring 2017	578	65.0%

All students **success**	Number	Percent
Fall 2014	499	62.7
Spring 2015	431	62.4
Fall 2015	520	61.6
Spring 2016	467	62.3
Fall 2016	660	65.1
Spring 2017	567	64.7

Brentwood data:

Afr. Am students **Completion**	Number	Percent
Fall 2014	20	80.0%
Spring 2015	39	88.6%
Fall 2015	26	72.2%
Spring 2016	32	82.1%
Fall 2016	22	75.9%
Spring 2017	38	77.6%

Low income students **Completion**	Number	Percent
Fall 2014		%
Spring 2015	263	88.0%
Fall 2015	225	78.7%
Spring 2016	258	83.5%
Fall 2016	216	80.3%
Spring 2017	254	84.4%

All students **Completion**	Number	Percent
Fall 2014		%
Spring 2015	421	86.3%
Fall 2015	404	80.6%
Spring 2016	445	85.9%
Fall 2016	393	80.7%
Spring 2017	449	85.0%

Afr Am students **success**	Number	Percent
Fall 2014	17	68.0%
Spring 2015	28	63.6%
Fall 2015	21	58.3%
Spring 2016	25	64.1%
Fall 2016	17	58.6%
Spring 2017	30	61.2%

Low income students **success**	Number	Percent
Fall 2014		%
Spring 2015	216	72.2%
Fall 2015	186	65.0%
Spring 2016	208	67.3%
Fall 2016	163	60.6%
Spring 2017	196	65.1%

All students **success**	Number	Percent
Fall 2014		
Spring 2015	358	73.4%
Fall 2015	336	67.1%
Spring 2016	363	70.1%
Fall 2016	297	61.1%
Spring 2017	349	66.1%

8.1. In looking at disaggregated data on success/retention, is there anything else that stands out?

Pittsburg analysis:

- Overall our data from 2014 – 2017 is consistent with the exception of Fall 2016. In this semester we started offering Math 28, a Developmental course that serves as a co-requisite for Math 34, Statistics. In Fall 2016 we saw an increase in the number of students taking Statistics as well as a small increase in math completion and success rates for African American students and for all students. It is important to note that the more than half of the transfer level students in each semester are in Statistics. Looking at the success data in Statistics, we can see that success increased after the introduction of Math 28:

Fall 2014	61.4%
Spring 2015	57.8%
Fall 2015	63.6%
Spring 2016	63.7%
Fall 2016	**68.6%**
Spring 2017	66.6%

This data indicates that the widening of access to Math 34 has not decreased success in Math 34 but possibly increased it slightly. The addition of Math 28 to our course offerings is discussed in the Developmental Math program review.

Additionally, about 2/3 of the students in transfer level math course are designated as low income. About 40% of students are identified as Latina/o and about 15% are identified as African American. These numbers align with the demographics of the college.

Brentwood Completion:

There is little difference between low income Completion and the completion rates for All Brentwood Students. In two of the past semesters (Fall 2015 and Spring 2017) there is a difference between African American completion rates and overall completion rates (although the sample size is low). In the other semesters the completion rates for African American students are comparable to overall success rates.

Brentwood Success:

The sample indicates little difference between average success rates overall and those among low income students. Success among low income students is most likely largely due to a number of factors including, but not limited to, our semester loan calculator program for Math 34 students sponsored by an Equity mini grant and other availability of free resources in the math lab. Brentwood also moved to an open textbook for Math 40, and hopes to do the same for other transfer level courses. The sample size is very small for African American Students taking transfer level math in Brentwood. This small sample size indicates a 5-10% lower success rate for African American Students compared to the average success rates for all students.

8.2. What are some strategies that might help students, particularly African-American, foster youth, and low income students successfully complete courses in your discipline? What resources would be needed to implement these strategies?

Pittsburg: We aim to use strategies cited in the CCCES report Aspirations to Achievement: Men of Color and Community Colleges:

- Creating classroom environments that foster a sense of belonging;
- Setting and maintaining high expectations through effective pedagogy;
- Engaging students in meaningful contextualized learning experiences;
- Communicating through interaction, class policies and materials that the instructor believes in each student's ability to succeed.

Additionally:

- We support the Umoja scholars program by providing the program with space and with designated Statistics sections
- Statistics faculty are working on identifying open source textbooks that align with our courses. Such texts provide students with a low cost option. One need is for funding to create online homework for My Open Math for Statistics. We need homework aligned with the COOR.
- To support students in Statistics we need designated support for math instructors who do not have a background in statistics or statistics pedagogy. A statistics teaching community, apart from the Math 28/34 group in the Developmental math program, is needed.
- Additional computer classrooms would further support statistics students in completing computer based work. With the increased capabilities of phones, more students are buying phones and not computers. We cannot assume that students have computers at home to complete online or software based assignments and projects.

Brentwood math would like to continue to move towards adopting open source texts for transfer level math courses. An open source text was already adopted for Math 40 in Fall 2016 and we would like to used funding from ZTC grant to work on finding more texts that align with the other transfer level courses. We are planning to convert Math 80 to an open text for Fall 2018.

Brentwood also looks forward to the completion of the new Brentwood Center in Spring/Summer of 2020. While there are currently many resources for students in Brentwood, the new center will give students better access to library resources, technology, and much more. Additionally, more science classes will be offered in Brentwood, reducing time students spend driving back and forth between the two campuses.

9. Goals

9.1. Review your program's goals as listed in response to the final question of your 2012-2013 Comprehensive Program Review posted in the Data Repository of the PRST.

These are the Long Term Goals listed from our previous CPR.

1. Adequately staff the Math department with quality full-time faculty;
2. Create and develop accelerated programs to improve student learning in transfer and developmental math levels;
3. Work with college-wide initiatives to improve retention and success of African-American students;
4. Assess and improve student support (lab and tutoring) services;
5. Create sustainable professional development for faculty teaching transfer level courses.

Highlight some of the key goals that were achieved over the past 5 years. What were the key elements that led to success?	We have achieved our goals in part. (1) We have hired full time faculty to replace those who have left, but we have not added additional full time faculty. (2) We have created curriculum and engaged in faculty development for Math 28/34 thanks to the transformation grant, but we have not fully developed our accelerated calculus option. (3) We continue to support Umoja, MEN, and FAM. (4) Our lab coordinators assess the lab and use results to continually improve lab services for students.
Were there any goals that did not go according to plan? What were the key elements that impeded the progress on these goals?	(1) We need full time hires to increase the proportion of courses taught by full time faculty and for required departmental work to be done (2) We need paid faculty time/leadership to develop acceleration (5) We need paid faculty time/leadership to organize and facilitate professional development

9.2. Consider the College's Strategic Directions along with our Integrated Planning Goals listed here:

College Strategic Directions 2014-2019	Integrated Planning Goals
1. Increase equitable student engagement, learning, and success. **2. Strengthen community engagement and partnerships.** **3. Promote innovation, expand organizational capacity, and enhance institutional effectiveness.** **4. Invest in technology, fortify infrastructure, and enhance fiscal resources.**	**1. ACCESS: increase access through enrollment of students currently underserved in our community.** **2. IDENTIFYING PATHWAYS: Increase the number of students that define a goal and pathway by the end of their first year.** **3. COLLEGE-LEVEL TRANSITION: Increase the number of students successfully transitioning into college level math and English courses.** **4. PERSISTENCE & COMPLETION: Increase successful course completions, and term to term persistence.** **5. EQUITABLE SUCCESS: Improve the number of LMC students who earn associates degrees, certificates of achievement, transfer, or obtain career employment.** **6. LEARNING CULTURE: Enhance staff, faculty and administration's understanding and use of culturally inclusive practices/pedagogy, demonstrating empathy and compassion when working with students.**

List 3 – 5 longer term (5 year) new goals for your program. For each goal, pick 1 – 2 College Strategic Directions and/or 1 – 2 Integrated Planning Goals to which your new goal aligns.

Goals	Aligned College Strategic Direction(s)	Aligned Integrated Planning Goal(s)
Goal 1: Adequately staff the math department with full time faculty so that fifty percent of courses are taught by full time faculty.	1	1,2,3,4,5,6
Goal 2: Develop and expand our accelerated offerings through focused leadership, including student recruitment, curriculum, and professional development	1,2	1, 3,4
Goal 3: Design and implement a programmatic effort to support under-served students, including but not limited to students of color and low income students; coordinate our effort with other campus projects.	1	1,5
Goal 4: Improve departmental use of data from	3	4

lab/tutoring assessment research, including but not limited to training for student tutors and faculty tutoring in the math lab.		
Goal 5: Design and implement professional development in the form of teaching communities and ordered pairs mentoring for faculty teaching transfer level mathematics	1	6
Goal 6: Redesign Geometry and Precalculus (trigonometry) preparation for calculus	1	4,5
Goal 7: Transform our use of instructional technology, with a potential shift away from calculators to computer/app based options	3,4	
Goal 8: Have appropriate facilities resources to appropriately teach to our course outlines	4	4, 6
Goal 9: Find more open textbooks that align with Transfer level math courses to reduce costs for students.	1,3	1,4,5
Goal 10: Identify attrition points in transfer pipeline and work to improve course completions and term to term persistence.	1	4
Goal 11: Increase number of and continually improve online math course offerings.	1	1,3

OPTIONAL

9.3 Resource needs to meet five-year goals

- Calculators for lab (Abbey, Julio, Diwa)
- Professional development- Mara is drafting

Operating Resource Request

Department/Unit Goal - Reference #	Strategic Objective - Reference #
7, 8	4
Department/Unit Name	**Resource Type**
Math	☐ IT Hardware/Software ☐ Facility Improvement

General Description	Est. Expense
Upgrade MA2-203 to the same "pop-up" computers used in other math classrooms	$60,000

Justification:

With the wonderful addition of these new desks in other classrooms, we are able to offer more of our nationally recognized, "closing the gap", accelerated math classes and increase the number of $0 cost math classes. However, we have now maxed out our capacity.
Currently, MA2-203 is not effectively used. Its setup does not support student learning and instructors are unable to teach to the Course Outlines. Thus it cannot be considered a "classroom". By updating this room, we will be able to create a new classroom on campus, offer more accelerated sections and add about 5 more math classes, which will significantly increase our FTES.

Operating Resource Request

Department/Unit Goal - Reference #	Strategic Objective - Reference #
7, 8	4
Department/Unit Name	**Resource Type**
Math	☐ IT Hardware/Software

General Description	Est. Expense
The Pittsburg Math department wishes to replace antiquated tablets. We request a class set (36) of wireless tablets for use in Math classrooms that currently do not have computers. The set would be include the 36 tablets, a portable housing unit and sufficient security requirements. The desired outcomes would include the purchase of the equipment, imaging and securing the equipment.	$30,000

Justification:

Portable classroom tablets will allow for the use of non-computer equipped classrooms for courses that are or could become technology intensive. All of our math classes mandate the use of technology, but only three classrooms have technology for students. A class set of tablets will effectively add another classroom able to offer technology to students.

Technology must be replaced every 3-5 years to avoid serious compatibility issues that lead to malware, viruses and inability to use the technology. Math received funding for tablets 3 years ago. Our current set of tablets are now becoming obsolete and thus pose a security risk to our campus.

Non-STEM students would learn how to use the tablet, access large data sets, display data analyze data, and write reports with embedded analysis. STEM students could use 3-D graphical representation (replacing the graphing calculator) and provide exact analytic solutions to complex math modeling problems.

Operating Resource Request

Department/Unit Goal - Reference #	Strategic Objective - Reference #
8	4
Department/Unit Name	**Resource Type**
Math	☐ Equipment ☐ Facility Improvement (Not sure which category)

General Description	Est. Expense
Lockers for Adjunct office	$1000

Justification:

The original plan for the math building included lockers for the adjunct office, but none were installed. Currently our adjuncts, who comprise the majority of teachers in the department, have no place to store personal belongings while they are teaching. The shared office is open/unlocked and adjunct faculty do not have keys to this office or its cabinets. We request that the original plan be implemented and that the adjunct faculty have a place to store small personal items. This situation is especially important to consider given the number of thefts in the building in the last two years. Note that this request was made by the department to Vice President Horan in the fall and we were directed to make the request via RAP.

Professional Development Resource Request

Department/Unit Goal - Reference #	Strategic Objective - Reference #
5	1
Department/Unit Name	**Resource Type**
Math	☐ Other

General Description	Est. Expense
Professional development activities for transfer level math faculty (1) Ordered pairs mentoring Fall 2018 and Spring 2019 • 8 instructors × 2 semesters × 8 hours per semester = 128 hours for participants • 1 facilitator × 2 semesters × 16 hours per semester = 32 hours for facilitation (2) Teaching community Fall 2018 and Spring 2019 • 5 instructors × 2 semesters × 20 hours per semester = 200 hours for participants • 1 facilitator × 2 semesters × 40 hours per semester = 80 hours for facilitation Note that the facilitation hours will compensate a full time faculty member to coordinate. The participation hours are to compensate adjunct faculty, except in cases where ordered pairs mentoring requires the expertise of a full time faculty member.	$22,200 (440 hours)

Justification:

For many years the Developmental Mathematics program in our department has run professional development in the form of teaching communities and ordered pairs mentoring. These activities provide faculty with support to develop their teaching skills and learn strategies for supporting our students through Developmental Mathematics. We have long needed a counterpart for those teaching transfer level math. This is especially critical now that AB705 will be widening access to transfer level math, we have already seen a large increase in the number of sections of Statistics we must offer, and we continue to seek ways to better support STEM students. Many faculty have little experience teaching Statistics and would greatly benefit from a teaching community and/or mentoring. A group of full time faculty has begun to work on the preparation for calculus students receive in Geometry and Precalculus. The efforts of this group need to include and benefit adjunct faculty as well.

Professional Development Resource Request

Department/Unit Goal - Reference #	Strategic Objective - Reference #
Department Goal 2, and Goal 5	Strategic Directions 1 and 3
Department/Unit Name	**Resource Type**
Math - NDFG	☐ Conference/Meeting ☐ Materials/Supplies ☐ Online Learning ☐ IT Hardware/Software ☐ Other

General Description	Est. Expense
Online-hybrid training/coaching	$3000

Justification:

To maintain and improve the quality of our online math offerings, it is necessary to train and support our adjunct instructors as well as full time instructors who are new to online teaching. We will have pre-semester workshops to train on the best use of Canvas, integrated with online homework delivery systems. Having a designated coach available as a resource throughout the semester will help the transition to online teaching be seamless, and support student learning.

For Fall 2018, we plan to offer two sections of Math 30 online, two math 34, and one Math 40. We expect this number to grow with the demand for online classes.