

<b>Name of college or university:</b>		Phillips Community College of the University of Arkansas (2/06/2020)
<b>1. Leadership Team members and areas of responsibility.</b> (Consider administration, advisors, student support services, faculty leads, etc. Add rows as necessary.)		
Name	Emails	Area(s) of responsibility
Edmondo (Gary) Torrelli	etorrelli@pccua.edu	Math-Developmental math and math lead
Brian Zimmerman	bzimmerman@pccua.edu	Math-Developmental math and math lead
Andrew Tubb	ttubb@pccua.edu	Math-Developmental math and math lead

<b>2. Implementation Targets:</b>		
2a. Enter percentage targets for serving underprepared students via co-requisites.		
Fall 2019 10%	Fall 2020 25%	Fall 2021 (75% or more) 50% is more realistic for PCCUA because of the high remediation
2b. Enter targets for percentage of all students completing their gateway math within one year.		
Enter Fall 2019, Complete by Summer 2020 8-10%	Enter Fall 2020, Complete by Summer 2021 18-25%	Enter Fall 2021, Complete by Summer 2022 45-55%

**3. Assessing Need/Co-Requisite Support Placement:** Please provide a broad overview of your current plans for assessing the level of support that students need. For example, will your multiple measures algorithm include high school GPA, high school math GPA, last math course taken, non-cognitive factors, etc.?

If you do not have a current plan, please provide two or three action steps that will inform the development of your plan.

ADHE 2016 Placement policy:

<https://static.ark.org/eeuploads/adhe/Student Placement.pdf>

PCCUA is a small institution with a very high underprepared population which makes broad implementation of math co-requisites challenging. Mandatory supplemental math labs are linked to three developmental math courses. The labs provide more time for guided math practice. These math labs increase instruction by one hour a week. Students enrolled in math have two math study options. The College Algebra Track has three courses to assist underprepared students for College Algebra preparedness and is designed for students receiving an Associate of Arts and Associate of Applied Science degrees. The developmental courses can be completed in one or two semesters depending on how fast the student progresses. All three of the developmental courses are co-requisite in nature. The Technical Math Track includes fundamental math and some elementary algebra and is tied to the math vocational skills needed for succeeding in the degree path for some Associate of Applied Science degrees. The Technical Math track can easily be completed in a year. Most students taking remedial math place into Elementary Algebra.

The following math sequence is in place.

**MS 1013 Fundamental Math**

Prerequisite: Next Gen ACCUPLACER QAS score of 238 or below. This course is for students having inadequate preparation for MS 1023 and MS 143 or MS 123. The emphasis in this course is on the practice of skills that students need in the everyday world. Topics to be developed are basic arithmetic, metric measure, line and circle geometry, as well as an introduction to algebra. Lab-This lab will provide supplemental academic support to students enrolled in Pre-Algebra (MS 1013), Elementary Algebra (MS 1023), or Intermediate Algebra (MS 1123).

**MS 1023 Elementary Algebra** Prerequisite: Completion of MS 1013 with a grade of "C" or higher or Next Gen ACCUPLACER QAS score of 239-246. Co-requisite: MS 000. This course provides an alternative to Basic Math. Topics include exponents, polynomials, factoring, linear equations, quadratic equations, graphs and functions. Lab-This lab will provide supplemental academic support to students enrolled in Pre-Algebra (MS 1013), Elementary Algebra (MS 1023), or Intermediate Algebra (MS 1123).

MS 1123 Intermediate Algebra Prerequisite: Completion of MS 1023 with a grade of “C” or higher or Next Gen ACCUPLACER QAS score of 247-254. Co-requisite: MS 000. A modern college-level course designed to prepare the student for College Algebra. Topics to be covered include fundamental operations, factoring, fractions, exponents, radicals, quadratics, linear equations, systems of linear equations, and graphs.

#### MATH GATEWAY

##### MS 123 College Algebra

ACTS Equivalent Course Number = MATH 1103 Prerequisite: Completion of MS 1123 with a grade of “C” or higher, ACT Math score of 19 or above, or Next Gen ACCUPLACER QAS score of 255 or above. This is a modern college algebra course based upon a function approach with emphasis on the following: Critical thinking, Mathematical modeling, and appropriate use of technology. Topics covered include: polynomial, rational, absolute value, exponential, and radical functions; graphing of polynomial, rational, exponential and logarithmic equations; graphing and solution of inequalities; solution of systems of equations using a variety of methods including determinants and matrices; other topics include progression, binomial theorem, partial fractions and set theory.

##### MS 143 Technical Math

Prerequisite: Completion of MS 1023 with a grade of “C” or higher or Next Gen ACCUPLACER QAS score of 247-254. This mathematics course is designed to provide mathematical tools needed by student enrolled in selected technical and occupational (AAS) Programs. The course incorporates mathematics which helps students analyze, set up and solve problems in their various majors. Emphasis is placed upon the practical aspects of mathematics. It includes selected topics on the operation of Real Numbers; conversion of fractions, decimals and percents; ratios and proportion, percent and applications; measurement - which includes conversion between English and the Metric system; essentials of algebra, consumer/financial mathematics; statistics, graphs, and probability; topics in geometry.

##### MS 183 College Mathematics

ACTS Equivalent Course Number = MATH 1003 Prerequisite: ACT Math score of 19 or above or Next Generation ACCUPLACER QAS score of 255 or higher. This is a college level mathematics course designed for students in non-STEM majors. The course incorporates mathematics that helps students analyze, set up and solve problems in their various majors. Topics include a review of ratios and proportions, percents and metric conversion; Inductive and deductive reasoning; financial mathematics; topics in algebra such as solving linear and quadratic equations, solving inequalities, solving applied ratio, proportion and variation problems, graphing and analyzing graphs; topics in geometry; regression analysis and statistics.

##### Mathway

A PCCUA employee assists students from the point of college inquiry to the time the student files an application for admission to the College. Once students come to the PCCUA One Stop Center, the student is assessed and assigned an advisor. The advisor plays a critical role in the student experience. Efforts at this first phase are focused on Planning for Success which includes Next Gen Accuplacer Preparation, testing and placement, the assignment of an advisor, referral for disabilities or other services if needed (Student Support Services, Career

Pathways, other). The advisor assists the student with all of the activities and helps build the student's schedule. The next phase, Enrolling for Success, is also monitored by an advisor and includes the completion of an Individual Career Plan (ICP) and the use of the appropriate Guided Pathway, Enrollment in Student Success I & II, financial and career coaching, income support screening, developmental education placement if needed, developmental education fast track (co-requisites) if desired, and ongoing focused advising. The third phase, Sustaining Success, requires advisor assistance to help the student with retention and completion and includes monitoring of class attendance and grades, continued career exploration if needed, selecting a major as early as possible, early assessment and early intervention monitoring by the instructors, tutoring referral or learning lab referral if needed, monitoring supplemental instruction lab participation and continued focused advising. All students start the Next Gen Accuplacer with the Quantitative Reasoning Algebra and Statistics (QAS) for placement. Students advance to the Advanced Algebra and Functions test if outcomes are high or descend to the Next Generation Arithmetic if the QAS outcomes are low.

#### Alternative Placement

ACT (Math) & Next-Gen ACCUPLACER (Quantitative Reasoning, Algebra, & Statistics)  
PCCUA uses the grade earned in high school Algebra I & II for alternative placement if a student's Nex-Gen Accuplacer score is low. This alternative requires a 3.0 or B earned in high school Algebra I & II or an 4.0 or A earned in Algebra II or Trigonometry. At entry, students may select to be placed in College Algebra if they have a 4.0 in the required high school math classes.

**4. Implementation Plan:** Please provide a broad overview of the population you intend to serve with co-requisites in Fall 2019 and your current plan to expand in Fall 2020. For example, "we plan to fully scale the algebraic pathway in Fall 2019. We will expand to the other pathways in Fall 2020." Another example: "we plan to serve all students who are assessed as 'one level down' with co-requisites this Fall. In Fall of 2020, we will expand to serve students with more need."

If you do not have a current plan, please provide two or three action steps that will inform the development of your plan.

In Fall of 2019, PCCUA will serve students one course below College Algebra, MS 123 (gateway), which would be Intermediate Algebra, MS 1123. In the spring of 2020, PCCUA will serve students in Technical Math, MS 143 (gateway) who are one course below Technical Math which would be Elementary Algebra, MS 1023. We are not sure we can fully scale the Algebra pathway but hope that we can for Technical Math by the Fall of 2021.

The PCCUA Mathways Action Plan includes the following steps:

- 1) Implement alternative placement options in the Fall of 2019,

- 2) Examine the possibility of changing current hours of contact for MS 1123/MS 123 & MS 1023/MS 143, currently 4 hours of contact.
- 3) Scale up co-requisite options for students to include Statistics and/or Quant Literacy pathways, once the main course is implemented.
- 4) Introduce Statistics as an on-line option Spring 2020, with a possible co-requisite in place by Fall 2021.
- 5) Introduce QLM as an on-line option by Fall 2020, with a possible co-requisite in place by Spring 2022.
- 6) Expand Faculty Inquiry Group activity to incorporate mathways work.

**5. Implementation Details:** For the co-requisites described in #4, please give structural details (cohort vs co-mingle, one instructor or two, current thinking on grades, etc.)

If you do not have a current plan, please provide two or three action steps that will inform the development of your plan.

- 1) Common first course in the sequence for all pathways: may be co-requisite course or a traditional course (Arithmetic with basic equation-solving skills and polynomials), probably will require adjustment/rebuilding of our MS-1013 or 1023 course, maybe 3 hours credit for lecture and 1 hour credit for the co-requisite "lab" course (1 or 2 hours each week).
- 2) Student's chosen pathway will determine the next step for the course sequence
  - a) STEM (Nursing?) Pathways: College Algebra with co-requisite
  - b) Non-STEM Pathways: Quantitative Reasoning with co-requisite (build QR first, then modify to add the co-requisite)
  - c) Business (Nursing?) Pathways: Intro to Statistics with co-requisite (build Statistics course first, then modify to add the co-requisite)
- 3) For-credit course sections and any corresponding co-requisite labs will be taught by the same instructor.
- 4) Students will complete the gatekeeper course for their prospective pathway in two semesters, three at most, only if we have to continue with two developmental courses instead of one common course.

**6. Plans for formative assessment of the co-requisites DURING the Fall 2019 semester.** Consider content/grades, feedback from both faculty and students via surveys or focus groups, etc. Plan now that adjustments will take place if necessary.

Each semester data related to pre and post testing, retention, success rate, and improvement scores based on entry pre test are the source of summative assessment and the data is documented and shared. This information informs changes which will be made regarding instruction, scheduling, assignment pace, and other aspects of instruction. Formative assessment is integrated into the process and occurs as students move through the learning modules/units. Outcomes are reviewed by faculty and if one on one instruction is required to reinforce or sometimes reteach a concept this is completed.

**7. Plans for program assessment of the co-requisites AFTER the Fall 2019 semester.**  
Consider content/grades, feedback from both faculty and students via surveys or focus groups, etc.

PCCUA uses Faculty Inquiry Group to assess co-requisite effectiveness. Currently this involves pre and post tests, grades, retention and completion rates. Faculty meet and discuss outcomes. Beginning in the Fall of 2019, the College will begin using math focus groups for student input about the effectiveness, ease of participation, quality of instruction, pace, and other aspects of the co-requisite participation.

**Complete the table below to gather baseline data for comparison.** To accurately assess whether underprepared students were better served by co-requisites rather than pre-requisite developmental, institutions must consider the “throughput” of students under the traditional model. To do so:

- Choose a starting semester under the old model (in this example, **Fall 2016**)
- Follow those students for two years to gather completion data (in this example, followed until **August 2018**)

Consider your <b>Fall 2016</b> enrollment.	Number	%
a. How many of those students were First-Time-In-College (FTIC) freshmen?	<b>198</b>	<b>11.3%</b>
b. How many of those FTIC freshmen needed to complete a gateway mathematics course for their program of study?	<b>110</b>	<b>55.6%</b>
c. How many of the freshmen in (b) actually completed that gateway mathematics course by <b>August 2017</b> ?	<b>60</b>	<b>54.5%</b>
d. How many of the freshmen in (b) actually completed that gateway mathematics course by <b>August 2018</b> ? (That will also include the students who completed by August 2017.)	<b>61</b>	<b>55.5%</b>
e. How many of the freshmen in (b) were designated as underprepared? <b>Disaggregate by age 25+, Pell eligible, and race/ethnicity.</b>	<b>63</b>	<b>57.3%</b>
The rows below represent your <b>developmental throughput</b> . They will be your basis for comparison to success rates for co-requisite students.		
f. How many of the freshmen in (e) completed their gateway mathematics course by <b>August 2017</b> ? <b>Disaggregate by age 25+, Pell eligible, and race/ethnicity.</b>	<b>22</b>	<b>34.9%</b>

g. How many of the freshmen in <b>(e)</b> completed their gateway mathematics course by <b>August 2018? Disaggregate by age 25+, Pell eligible, and race/ethnicity.</b>	<b>23</b>	<b>36.5%</b>
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If you wish, you can further disaggregate by students who are one level, two levels, and three or more levels below college-ready.

**8. Current outstanding questions or supports needed from ADHE, ACC, or Dana Center Regional Coordinators.**

The PCCUA math faculty have questions but are unable to clearly articulate these. In fact, we are not sure what questions will need to be answered at this time.