Anne Arundel Community College Pathways:
Pre-requisites and Co-requisites

The colorful page shows our pathways as they stand now.

Why all the changes?

- In 2013 Maryland passed a bill (College and Career Readiness and College Completion Act of 2013) which required colleges to provide a pathway for students who enter at any level of developmental math/English to be able to finish their developmental and one credit-level math/English requirements within one academic year. Hence, the pathways.
  - Quantitative Foundations Pathway rolled out Fall 2017
  - College Algebra Foundations Pathway rolled out Fall 2017
  - Calculus Foundations Pathway rolled out Fall 2018
- As we commenced down the pathway path, we found that additional changes were needed. Student success needed to be improved.

***Our college has also started with Multiple Measures this Fall as mandated. We anticipate needing to make additional changes once we have sufficient data. Those changes may be with the placement determinations, with the courses, or both. The data will tell😊

MAT 035/135: Pre-statistics (2 hrs) and Statistics (3 hrs)
(This is the Qualitative Foundations Pathway – least rigorous)

In Fall 2016, our first and only co-requisite model, MAT 035/135, began. It is part of the FITW MMRI (First in the World Maryland Mathematics Reform Initiative) grant which is a collaborative effort between five of the public four-year University of Maryland System (USM) institutions and seven of the two-year colleges in the state. (see https://dcmathpathways.org/where-we-work/maryland).

- It is run as a co-requisite course.
- Students receive a grade for both MAT 035 (A, B, C, or F) and MAT 135 (A, B, C, D, F).
- If a student fails MAT 035, they will fail MAT 135, regardless.
- If a student chooses to drop MAT 135 portion only, they must receive special permission
- MAT 035 is not offered as a stand-alone course.
- We are only running 5 sections of MAT 035/135 this Fall with a maximum of 25 students per class.
MAT 044 → MAT 045 → MAT 145

Pre-calculus Foundations (5 hrs) → Introduction to Pre-calculus (2 hrs) → Pre-calculus 1 (3 hrs)

(essentially the STEM pathway – the most rigorous)

- Currently MAT 044 is a 5 hour course ranging from basic prealgebra to mid-way through intermediate algebra.
- MAT 045 is essentially the last half of intermediate algebra.
- MAT 045/145 is currently in a pre-requisite model with MAT 045 being 5 weeks long followed by MAT 145 which is 10-weeks long.
- Originally, only a select group of qualified students were allowed to take the pre-requisite model course (MAT 045/145) with reasonable success. The hour distribution for MAT 045 (2 hrs) and MAT 145 (3 hrs) was doable for these students.
- In Fall 2017, MAT 045/145 pre-requisite model course was opened up to all students. The drop in success contributed to us exploring a co-requisite model similar to MAT 035/135 as the research supports co-requisite models.
- We will be changing the hour allocation from 5/2 to 3/3 for MAT 045/145.
- We do run stand-alone sections of MAT 045 for 8-weeks currently. In Fall 2020, we will add some 13-week and 15-week sections as we will be increasing the course hours from 2 to 3.
- All courses in this pathway are run as lecture courses and held in regular classrooms.

Questions we are asking ourselves for developing the corequisite model for MAT 045/145:

- How can we design this so that if a student decides a 6 hour course is too much, a portion of their tuition will be returned or credited and they can continue in MAT 045? (BIG discussion!!)
- How can we keep the cost down for both the textbook (or etext) and the homework management system?
- Since only the chair of our committee gets release time, how can we do this efficiently? (We have decided on a blended model with much stuff already created that we will need to modify – still lots of work!)
- How will we handle the grading? Will MAT 045 be P/F? If a student passes MAT 145 but fails MAT 045 should we say they passed MAT 045?
- Have we considered all the different considerations and accommodations we should - such as equity, diversity, and disability support services?
- What other offices and processes at the college do we need to consider? Is there a timeline or deadline?
  - First and foremost, the college needs to approve the changes to the courses.
  - The registration system has restrictions for how it can be programmed.
  - There are requirements on how and when various student data needs to be reported to the state – which impacts when students can drop and receive tuition refunds.
  - Financial aid (including Military and Veteran funding) has other restrictions.
  - The catalog has a deadline to get the new course descriptions and hours submitted.
  - We need to educate the advisors so they can continue to do their jobs well.
MAT 036 → MAT 037 → MAT 137
Foundations of College Algebra (4 hrs) → Introduction to College Algebra (2 hrs) → College Algebra (3 hrs)
(has become the “default” pathway since it is the “middle” one)

Note – many of the considerations are the same in this pathway as for the Calculus Foundations Pathway.

As stated, this pathway has become the “default” pathway. If a student is unsure of which program of study to choose, advisors will place them in this pathway. They are slightly more prepared if they only need a credit-level math course in the Quantitative Foundations Pathway and a little underprepared if they switch to the Calculus Foundations Pathway. This was not foreseen.

- There is no MAT 037/137 pre-requisite or co-requisite model currently. The co-requisite model is being developed now.
- This committee has chosen to use more of an OER resource and to build MAT 037/137, MAT 037 stand alone, and MAT 137 stand-alone courses.
- They will be creating supplements to ensure all material is covered appropriately.
- They have chosen to include classroom activities in non-cognitive skills.
- MAT 036 will be held in a computer classroom and run as a computer intensive course.
- MAT 037, MAT 037/137, and MAT 137 will be held in a regular classroom and be run as lecture courses.

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Course/Enrollment</th>
<th>Course/Enrollment</th>
<th>Course/Enrollment</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Algebra</td>
<td>MAT 036</td>
<td>MAT 037</td>
<td>MAT 137</td>
<td>2319 (46.8%)</td>
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<tr>
<td></td>
<td>629</td>
<td>472</td>
<td>1218</td>
<td></td>
</tr>
<tr>
<td>Calculus</td>
<td>MAT 044</td>
<td>MAT 045</td>
<td>MAT 145</td>
<td>375 (7.6%)</td>
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<td></td>
<td>83</td>
<td>49</td>
<td>243</td>
<td></td>
</tr>
<tr>
<td>All Math - Total</td>
<td></td>
<td></td>
<td></td>
<td>4952 (100%)</td>
</tr>
</tbody>
</table>

Note 1: There are 17 other math courses offered!
Note 2: Not all courses in a pathway are listed or discussed.
Three Pathways through Mathematics at AACC

| ✔ Quantitative Foundations Pathway | ✔ College Algebra Foundations Pathway | ✔ Calculus Foundations Pathway |

To determine which pathway is best for you, talk to an Advisor to answer these two questions:

1. What is your program of study?  
2. Where do you want to transfer?

The possible first credit-level mathematics courses for each pathway are shown below.

### Quantitative Foundations Pathway

If you placed into MAT 034, your pathway looks like this:

- MAT 034
- MAT 100 or MAT 133 or MAT 135

Note: Students who place into MAT 035 may still elect to take MAT 034 rather than the accelerated pathway for MAT 135.

If you placed into MAT 035, your pathway looks like this:

- MAT 035/MAT 135 ALP

ALP: Accelerated Learning Program - take two linked courses in the same semester (must enroll in both).

### College Algebra Foundations Pathway

If you placed into MAT 036, your pathway has two options:

- MAT 036
- MAT 037
- MAT 137 or MAT 221* or MAT 222*
  *For Elementary/Early Childhood Education majors

Or

- MAT 036/MAT 037 ALP
- MAT 137 or MAT 221* or MAT 222*
  *For Elementary/Early Childhood Education majors

ALP: Accelerated Learning Program - take two linked courses in the same semester (must enroll in both).

If you placed into MAT 037, your pathway looks like this:

- MAT 037
- MAT 137 or MAT 221* or MAT 222*
  *For Elementary/Early Childhood Education majors

Note: Students who successfully complete MAT 037 are also eligible to take MAT 100, MAT 133, and MAT 135.
Calculus Foundations Pathway

If you placed into MAT 044, your pathway looks like this:

MAT 044 → MAT 045 → MAT 145

If you placed into MAT 045, your pathway has two options:

MAT 045 → MAT 145

Or

MAT 045/MAT 145 ALP

ALP: Accelerated Learning Program - take two linked courses in the same semester (must enroll in both).

Course hours and titles:

MAT 034 (4 hours): Quantitative Foundations
MAT 035 (2 hours): Pre-statistics
MAT 100 (3 hours): The Nature of Mathematics
MAT 133 (3 hours): Finite Mathematics
MAT 135 (3 hours): Statistics

MAT 036 (4 hours): Foundations of College Algebra
MAT 037 (2 hours): Introduction to College Algebra
MAT 137 (3 hours): College Algebra
MAT 221 (4 hours): Fundamental Concepts of Mathematics 1
MAT 222 (4 hours): Fundamental Concepts of Mathematics 2

MAT 044 (5 hours): Precalculus Foundations
MAT 045 (2 hours): Introduction to Precalculus
MAT 145 (3 hours): Precalculus 1

Note: Students who successfully complete MAT 045 are also eligible to take MAT 100, MAT 133, MAT 135, MAT 137, MAT 221, and MAT 222.

If you have questions please contact the Math Department Office (410-777-2360) or email at mathdepartment@aacc.edu