Connecting the High School Math Pathways to College Credit Plus and the Ohio Guaranteed Transfer Pathways

WHAT ARE THE OHIO GUARANTEED TRANSFER PATHWAYS?
The Ohio Guaranteed Transfer Pathways are designed to provide a clearer path to degree completion for students pursuing associate degrees at Ohio's public community colleges with plans to transfer to Ohio public universities to complete their bachelor's degrees. The Ohio Guaranteed Transfer Pathways also constitute agreements between public community colleges and universities confirming that community college courses meet major preparation requirements and will be counted and applied toward the bachelor's degree. Students still must meet all university program admission requirements.

Because the Ohio Guaranteed Transfer Pathways align college majors to entry-level math courses, these also are useful for school counselors when advising students about which courses to take in high school, including those students who are planning to enter directly into four-year institutions directly after graduation. Students can search transferable courses by *major*, *academic cluster* or even *institution*. More information can be found on the Ohio's Transfer to Degree Guarantee webpage.

HOW CAN COLLEGE CREDIT PLUS SUPPORT A STUDENT'S PATHWAY TO GRADUATION?
College Credit Plus can be a life-changing opportunity for Ohio's high school students. Students who otherwise would not have access to college coursework can experience the rigors of college coursework and begin to accrue credits toward a degree. Some students even have the opportunity to earn degrees while in high school.

As school leaders explore the connections between College Credit Plus coursework and Ohio's Math Pathways, these courses can more directly align to a student's intended post-high school pathway. Building intentional pathways through a student's math pathway into a college math course within the College Credit Plus program can provide direct connections between a student's learning and his or her future aspirations.

HOW CAN THE OHIO GUARANTEED TRANSFER PATHWAYS HELP COLLEGE CREDIT PLUS STUDENTS?
College Credit Plus is Ohio's dual enrollment program, where students in grades 7-12 can earn both high school and college credits. Since the Ohio Guaranteed Transfer Pathways map out the first two years of coursework for multiple programs across the state, Ohio Guaranteed Transfer Pathways can give College Credit Plus students excellent direction in the exact courses they will need to take to complete degrees. If students know their career interests, students and advisers can use Ohio Guaranteed Transfer Pathways to plan for the coursework toward the degree program of their choice, which will ensure a seamless transition to public colleges or universities in Ohio. Students can get a great head start by planning early and starting on this path while still in high school.

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The figure to the right shows the entry-level courses for a student who is interested in majoring in social work/social services/human services. The figure highlights the most appropriate math course for that student would be Transfer Module Mathematics (TMM) 010-Introductory Statistics. More information about learning outcomes related to entry-level transferable courses can be found at Ohio's Transfer 36: Learning Outcomes webpage. For more information on the College Credit Plus program, please visit the College Credit Plus webpage.

Ohio TRANSFER TO DEGREE guarantee
Guaranteed Transfer Pathways

Statewide
Social Work/Social Services/ Human Services Associate of Arts
June 20, 2018

GENERAL EDUCATION REQUIREMENTS/OHIO TRANSFER MODULE	Minimum Credit Hours
ENGLISH COMPOSITION AND ORAL COMMUNICATION:	3
Course 1: Any OTM approved First Writing (TME001) course	3
MATHEMATICS, STATISTICS, AND LOGIC:	3
Course 1: Any OTM approved mathematics [Highly recommended: Introductory Statistics (TMM010)]	3
ARTS AND HUMANITIES:	6
+ Course 1: Any OTM approved Arts and Humanities course (Arts related)	3
+ Course 2: Any OTM approved Arts and Humanities course (Humanities related)	3
SOCIAL AND BEHAVIORAL SCIENCES:	6
+ Course 1: Introduction to Psychology (OSS015)	3
+ Course 2: Introduction to Sociology (OSS021)	3
NATURAL SCIENCES:	6-7
Course 1: Any OTM approved Natural Sciences course	3
Course 2: OTM approved Biological Science course with lab (Recommended: Human Biology)[2]	3-4
ADDITIONAL CREDITS:	12
Course 1: Any OTM approved Second Writing (TME002) course	3
Courses: Up to 9 hours of additional OTM approved courses[3]	9
GENERAL EDUCATION/OHIO TRANSFER MODULE TOTAL:	36-38

WHAT ARE APPROPRIATE COLLEGE CREDIT PLUS MATH COURSES FOR STUDENTS TO TAKE BASED ON THE ALGEBRA 2 EQUIVALENCY COURSE?

Algebra 2: With the emergence of the high school math pathways, Algebra 2 has been refocused to help student succeed in the Calculus pathway. The most current standards document has aligned the Algebra 2 standards to the most current version of TMM 002-Precalculus, which can be found on the Ohio's Transfer 36: Learning Outcomes webpage. Therefore, it is **not** beneficial for students on the Calculus-based STEM pathway to take a TMM 001-College Algebra college course. Rather it would be more beneficial for a student on this pathway to take the following:

- A pre-Calculus course at their local high school;
- The collegiate-level TMM 002-Pre-calculus college course; or
- A TMM 003-Trigonometry course.

Following a pre-Calculus or a Trigonometry course, students should take the following:

- An AP Calculus;
- A TMM 005-Calculus 1 course; or
- Other Calculus course that suits their intended majors (for example, TMM 013-Business Calculus or TMM 024-Life Science Calculus).

Students can enroll in all collegiate TMM courses through the College Credit Plus program.

Quantitative Reasoning: There is a direct linkage between Ohio's Mathematical Modeling and Reasoning course and the collegiate-level TMM 011-Quantitative Reasoning course. However, due to the amount of statistics embedded in Ohio's Mathematical Modeling and Reasoning course, a TMM 010-Introductory Statistics or TMM 026-Introductory Data Science (which will be posted on Ohio's Transfer 36: Learning Outcomes webpage page soon) also could be appropriate. Additionally, TMM 015-Technical Mathematics could be a way for students who enjoyed the application aspect of Ohio's Mathematical Modeling and Reasoning course to get back on the Calculus Pathway. TMM 021-Mathematics in Elementary Education I also would be appropriate. Students can enroll in all collegiate TMM courses through the College Credit Plus program.

Statistics and Probability: There is a direct linkage between Ohio's Statistics and Probability course and the collegiate-level TMM 010-Introductory Statistics. Ohio's Statistics and Probability course also is a bridge to TMM 026-Introductory Data Science (to be posted on Ohio's Transfer 36: Learning Outcomes webpage page soon), which has a statistics element. A TMM 011-Quantitative Reasoning course also would be an

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appropriate follow-on course as it integrates statistics concepts into its learning outcomes. Additionally, a TMM 021-Mathematics in Elementary Education I also would be appropriate. Students can enroll in all collegiate TMM courses through the College Credit Plus program.

Data Science Foundations: There is a direct linkage between Ohio's Data Science Foundations course and the collegiate-level TMM 026-Introductory Data Science (which will be posted on Ohio's Transfer 36: Learning Outcomes webpage page soon). Currently, Ohio is promoting UCLA's *Introduction to Data Science* course as Ohio's Data Science Foundation course. UCLA's *Introduction to Data Science* course also integrates the programming language R/RStudio, which will be used in the TMM 026-Introductory Data Science course. Data Science Foundations also is a bridge to a TMM 010-Introductory Statistics and TMM 011-Quantitative Reasoning course. A TMM 021-Mathematics in Elementary Education I also would be appropriate. Students can enroll in all collegiate TMM courses through the College Credit Plus program.

Discrete Math/Computer Science: There is a direct linkage between Ohio's Discrete Mathematics/Computer Science course and the collegiate-level ATMM 023-Discrete Mathematics. However, a TMM 011-Quantitative Reasoning course also could be appropriate as there is a lot of reasoning embedded in the course. A TMM 026-Introductory Data Science (which will be posted on Ohio's Transfer 36: Learning Outcomes webpage page soon) also may be appropriate with the level of computer coding integrated into Ohio's Discrete Mathematics/Computer Science course. Additionally, a TMM 015-Technical Mathematics could be a way for students who enjoyed the hands-on applications of a Discrete Mathematics/Computer Science course to get back on the Calculus Pathway. Students can enroll in all collegiate TMM courses through the College Credit Plus program.

For a crosswalk of how College Credit Plus math courses can align to a student's math credits in high school, please visit the College Credit Plus resources page.

For information about planning a student's pathway to graduation, learn more about graduation plans here.

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