Ohio Mathematics Initiative
•Re-envisioning Post-secondary Mathematics

Ohio's Mathematics Pathways

The Ohio Mathematics Initiative (OMI) is a faculty-driven initiative that seeks to resolve for Ohio's public colleges and universities barriers to student success and mathematical literacy that students are experiencing across the nation. The OMI started in 2013 when the Ohio Department of Higher Education charged the Ohio Mathematics Steering Committee with developing expectations and processes that result in each campus offering pathways in mathematics that yield (1) increased success for students in the study of mathematics; (2) a higher percentage of students completing degree programs; and (3) effective transferability of credits for students moving from one institution to another.

In Rethinking Postsecondary Mathematics: Final Report of the Ohio Mathematics Steering Committee, the steering committee provided their recommendations. One of the recommendations involved the development of high quality entry-level courses and pathways connected to coherent programs of study for students majoring in (a) mathematics, (b) other mathematics-intensive majors, and (c) majors that are not mathematics-intensive.

The three pathways, developed by mathematics faculty, are designed to begin discussions across the academy on the mathematical concepts that students need to be successful in their chosen career paths. The goal is to increase student success, make mathematics more relevant to all students, and provide students with the right college-level mathematical foundation and critical thinking skills they will need to be successful through their highest level of degree attainment and throughout their lives.

1 Statistics Pathway

- College-level introductory statistics courses designed for students without a Calculus background and who do not require College Algebra or Calculus
- Part of the general education requirement for majors in the fields that may include the following:
  - » Nursing
  - » Nutrition
  - » Social Work
  - » Associates in Business

2 Quantitative Reasoning Pathway

- College-level courses designed to emphasize quantitative thinking and problem solving using quantitative methods
- Part of the general education requirement for majors in the fields that may include the following:
  - » Communication
  - » Criminal Justice
  - » Fine arts
  - » Education (Elementary, History, Social Studies, etc.)

3 STEM-Preparation Pathway

- College-level courses (i.e., College Algebra, Pre-Calculus, Trigonometry, Business Calculus, and/or Calculus) designed for students in mathematics-intensive majors
- Part of the general education requirement for majors in the fields that may include the following:
  - » Business
  - » Chemistry
  - » Engineering
  - » Education (Math, Science, Technology etc.)
  - » Physics

All students must take a minimum of one college-level mathematics course to earn a degree regardless of major. It is recognized that for some majors the pathways may overlap. For example, a student working toward an Associate Degree in Business may take either the Statistics Pathway or the STEM-Preparation Pathway, depending on the purpose of the degree and future intentions (entering the workforce or transferring to a four-year business program). The current Business Transfer Assurance Guide (TAG) requires that students complete either a Calculus or Business Calculus as part of the Ohio Transfer Module Mathematics, which is currently guaranteed to transfer and apply toward a baccalaureate degree in business. These transfer students would also complete business statistics as part of the four-year business program.

Furthermore, when developing pathways, there may be some institutions that wish to explore the Quantitative Reasoning course for nursing and allied health majors, rather than the current requirement using a statistics course. Another example may include institutions wishing to explore the Quantitative Reasoning course to replace Math for Liberal Arts Majors or to expand to other liberal arts majors.

An additional pathway based on a new Ohio Transfer Module course may be developed for Early and Middle Childhood Education majors. Such course may be known as Mathematics for Early Childhood Education Majors, Mathematics for Middle Childhood Education Majors, Mathematics for Education Majors, or Mathematical Foundations for Early/Middle Childhood Education Majors.

Subgroup 1 of the Ohio Mathematics Chairs/Leads Network recommends that students' majors and programs follow this three-tiered pathway system.