Transfer and Applicability FAQ
Fall 2014 Updated Edition

The most common questions that we receive about the New Mathways Project are about transfer, articulation, and applicability.

In this periodic update, we provide answers to the most frequently asked questions and share our plans for ongoing work. We seek to improve the accuracy of relevant information, build support for multiple pathways at two- and four-year institutions, and increase consistency in the applicability of mathematics courses to majors at institutions across the state.

To this end, the Dana Center gathers data, develops clarifying resources and reference materials, conducts outreach, and engages in system-level work to further enable the scaling up of alternative mathematics pathways. Details of this work are described below.

Information in this update pertains particularly to the first two pathways under development: statistics and quantitative reasoning. We will update this document to reflect the STEM Prep pathway when we begin development.

The information in this FAQ applies specifically to Texas, though we believe the issues in other states will be similar. Many of the strategies we use will be applicable as we expand our work outside of Texas.

FREQUENTLY ASKED QUESTIONS

Will the college-level NMP courses transfer?

Does the developmental-level NMP math course fit into the Academic Course Guide Manual (ACGM)?

How applicable are the NMP courses to particular majors? Is it safe to advise students who intend to transfer into the statistics and quantitative reasoning pathways when the default gateway course recommendation has been college algebra?

How are you working with four-year institutions to improve applicability?

What if my transfer partner requires college algebra as a prerequisite for statistics?

How does the design of the NMP address concerns about placing students into the correct pathway?

Our students are likely to change majors. What happens if they take the statistics or quantitative reasoning pathway and later decide to pursue a STEM major?

When are NMP students TSI (Texas Success Initiative) complete?

Can four-year institutions implement the NMP?

How can I learn more about transfer and applicability issues related to the NMP?
FAQ RESPONSES

Will the college-level NMP courses transfer?

Yes. Students who complete an NMP pathway will receive credit for one developmental mathematics course and one college-level mathematics course. The college-level NMP mathematics courses are designed to meet the Texas Academic Course Guide Manual (ACGM) outcomes for Elementary Statistical Methods (Math 1342/1442) and Contemporary Mathematics (Math 1332). As students transfer to other institutions, their transcripts will reflect the completion of these standard college-level mathematics courses.

NMP students also co-enroll in a college-level student success course that is aligned to the ACGM Learning Frameworks course (Educ/Psyc 1300). Learning frameworks courses are approved for general academic transfer and may be offered as an education or psychology course or may be cross-listed in both departments.

During the 2014–2015 academic year, the Texas Higher Education Coordinating Board (THECB) intends to articulate in greater detail the ACGM outcomes for Math 1332 and Educ/Psyc 1300. THECB will invite presidents and chancellors from institutions of higher education to nominate representatives to serve on ACGM committees for these courses. The Dana Center will collaborate with THECB and committee representatives to ensure that NMP college-level courses remain fully aligned to the revised ACGM learning outcomes.

Does the developmental-level NMP math course fit into the Academic Course Guide Manual (ACGM)?

The Texas Higher Education Coordinating Board (THECB) plans to develop ACGM outcomes for the Developmental Mathematics course (approval number 32.0104.51 19) during the 2014–2015 academic year. This course is envisioned as a mathematics course for students in non-mathematically intensive majors and as an alternative to Intermediate Algebra. The THECB plans to share the NMP Foundations of Mathematical Reasoning course outcomes as a first draft of the new ACGM outcomes. The THECB also plans to work with the Texas Mathematical Association of Two-Year Colleges (TexMATYC) and other Texas professional associations and faculty to vet the outcomes and provide input before a formal adoption process begins.

How applicable are the NMP courses to particular majors? Is it safe to advise students who intend to transfer into the statistics or quantitative reasoning pathways when the default gateway course recommendation has been college algebra?

Whether NMP courses are applicable to a particular major depends on the requirements for individual majors at individual colleges and universities. Applicability must be assessed on a case-by-case basis, and until recently, no central location for finding this information existed. To address this problem, the Dana Center developed the Mathematics Pathways Transfer Inventory, which identifies core curriculum and mathematics course requirements by program for all public four-year institutions in Texas. Updated periodically, this spreadsheet is available on the NMP website.

Traditionally, many students were advised into a college algebra path that was intended to prepare them for calculus and STEM majors. Very high rates of failure and a misalignment between the skills covered in college algebra and those required for subsequent coursework for many majors suggest that college algebra should not be considered the only “safe” option for students who begin postsecondary education at a Texas community college or university.
The Mathematics Pathways Transfer Inventory shows that while there is variability in the math courses required for majors at different campuses, multiple mathematics pathways already exist at many public universities included in the resource. Specifically, the Inventory shows that:

- Contemporary Mathematics (Math 1332/1333) and Elementary Statistical Methods (Math 1342/1442), as well as College Algebra (Math 1314/1414), are three common courses used to satisfy the Texas core curriculum requirement for mathematics.
- Out of 37 institutions, 32 require three hours of mathematics to satisfy their general education requirement, and the remaining five institutions require six hours.
- Thirty-one institutions in the Mathematics Pathways Transfer Inventory offer either statistics or contemporary mathematics-type courses in their lists of eligible core mathematics courses, and many colleges include both. At 29 institutions, college algebra is not the only choice for students who are pursing certain non-STEM degrees.
- Most associate and bachelor’s degrees in liberal arts, fine arts, and social sciences require or permit statistics or contemporary mathematics to fulfill general education requirements. The NMP statistics and quantitative reasoning pathways are well aligned to these types of programs.

Please contact mathways@austin.utexas.edu if you have information that could improve our resources. Data for the Mathematics Pathways Transfer Inventory were assembled from institutional course catalogs, academic program websites, and interviews with mathematics faculty and academic advisors. Data are accurate to the best of our ability as of July 2014.

The Dana Center recently released a series of issue briefs that examine what constitutes relevant mathematics preparation for various majors by studying professional organization recommendations and Texas institutional requirements. Thus far, we have studied the fields of nursing, communications, criminal justice, and social work, each of which is well aligned to statistics or quantitative reasoning (i.e., contemporary math) courses based on professional recommendations. Even where recommendations are clear, there is evidence of variability remains in university requirements in Texas as well as in advising practices. Work to improve consistency and applicability is central to the NMP policy agenda.

**How are you working with four-year institutions to improve applicability?**

The Dana Center and the Texas Association of Community Colleges (TACC) are working at the state level and with institutions to improve alignment across institutions.

**Statewide**

- The Dana Center works with the Texas Higher Education Coordinating Board (THECB), University of Texas System, Texas Success Center, and Complete College America to advocate for greater consistency in program requirements. We work with national and state professional associations of mathematics to coordinate our calls for reform and to highlight the importance of this topic as part of the larger completion agenda.
- Under the leadership of the presidents of the nine codevelopment colleges that began implementing the NMP in Fall 2013, the Dana Center and TACC have launched the Transfer Champions Initiative. The goal of this initiative is to have four-year institutions support the NMP and the work of the 50 community college systems to improve success
in gateway and developmental mathematics statewide. We ask that participating four-year institutions:

- Aid the work of the 50 community colleges to implement multiple mathematics pathways by developing a shared understanding of the NMP and its goals.
- Verify that the NMP college-level courses are rigorous, transferable for college credit, and can be predictably applied to majors.
- Commit to working with two-year colleges in their region to create efficient and effective transfer pathways in which mathematics requirements are aligned to programs of study, particularly in nursing, communications, social work, and criminal justice.

Seventeen four-year institutions were invited by codevelopment colleges to participate in the Transfer Champions Initiative in November 2013. For more information about the early work of the Transfer Champions Initiative including regional kickoff meetings, review the 2014 Spring Update. Additional four-year institutions will be invited to join the Initiative by those community colleges that begin implementation during the 2014–2015 academic year.

- The Dana Center is providing opportunities for faculty at two- and four-year institutions to participate in the development of the NMP courses by developing course outcomes, articulating course design standards, authoring lessons, and reviewing materials. So far, faculty from the following Texas institutions have participated in the development of NMP courses:

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<th>Angelina College</th>
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<td>Coastal Bend College</td>
<td>El Paso Community College</td>
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<td>Kilgore College</td>
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We have convened or participated in numerous statewide and regional transfer and applicability events. We regularly engage with the Texas Association of Chief Academic Officers, the Texas Association of Academic Administrators in the Mathematics Sciences, the Texas Success Center, and the Texas Student Success Council. Videos and presentations regarding the NMP, the Texas core curriculum, gateway math course applicability, and programs of study are available on the NMP policy resources webpage.

**What if my transfer partner requires college algebra as a prerequisite for statistics?**

Recent changes to state rules no longer permit prerequisites for entry-level mathematics courses. The Texas Administrative Code, title 19, part 1, chapter 4, subchapter C, rule 4.53, states that Math 1314, 1414, 1324, 1332, and 1342 are considered entry-level courses and shall not have prerequisites.

**How does the design of the NMP address concerns about placing students into the correct pathway?**

The NMP is designed to reduce the likelihood of “misplacing” students into courses that are not applicable to their future majors. Many students, especially developmental students, do not have clearly defined academic and career goals when they enroll in college. When these students do have goals about a program of study, they often do not understand the requirements and ramifications of their goals. The problem is compounded by limited advising resources available on most campuses.

Yet the success of the NMP depends on appropriate student placement and advising. We address this concern in several ways. The structure of the NMP courses includes a common first course for all three math pathways and a corequisite student success course. As part of the student success course, students choose a program of study, identify the math pathway that aligns to their program of study, and determine the second mathematics course that is appropriate to their chosen pathway. Content in the student success course explicitly includes career exploration, goal setting, and degree planning.

The NMP also provides resources and services for advising professionals to build their awareness of and preparation for NMP implementation on campuses.

**Our students are likely to change majors. What happens if they take the statistics or quantitative reasoning pathway and later decide to pursue a STEM major?**

Even with better advising and career exploration, some students inevitably change their majors. We predict that some students who succeed in one math pathway will change their desired program of study to one that requires them to complete a different math pathway. The NMP is exploring the development of bridge minicourses, noncourse-based modules, and other strategies to enable students to make the shift efficiently.

It should also be noted that data on student major changes suggest some patterns of major changes are more common than others. Many students switch among social science and humanities majors. Others switch among STEM majors. Some students switch from a STEM major to a humanities or social science major, but few students who begin in humanities or social science majors later switch to STEM majors.
When are NMP students TSI (Texas Success Initiative) complete?

Under the new Texas Success Initiative (TSI) rules (Texas Administrative Code, title 19, part 1, chapter 4, subchapter C, [rule 4.59](#)), developmental students can become TSI complete in a variety of ways. They may retest and pass the new TSI assessment test. Developmental students may also successfully complete a gateway course as part of a corequisite model. Most relevant for students participating in the NMP, developmental students may successfully complete developmental coursework to prepare them for college-level courses. Rule 4.59 states that “institutions shall determine” the number and content of developmental courses that a student must complete to become ready for college-level courses.

In Summer 2014, the Texas Higher Education Coordinating Board (THECB) approved changes to Rules 4.54 and 4.59 that clarify and increase flexibility in the TSI rules to determine when a student is college ready in mathematics if he or she completes developmental mathematics coursework other than intermediate algebra. Rules 4.54 and 4.59 in the education code now allow (but do not require) institutions to use two college readiness designations in mathematics—one designation for any freshman-level mathematics course (Math 1314/1414, 1324, 1342/1442, and 1332) and another for students who are college ready for non-algebraically intensive mathematics courses only, which include statistics (Math 1342/1442) and contemporary mathematics (Math 1332). If a student becomes college ready in statistics or contemporary mathematics only, but later decides to pursue a major that requires college algebra (Math 1314/1414) or business mathematics (Math 1324), he or she may be required to complete additional developmental work based on institutional discretion.

Note that the rule change pertains to the characterization of college readiness once students have completed developmental coursework or interventions, not initial TSI assessment and placement decisions.

The rule change significantly aids the implementation of the NMP in Texas by offering institutions options to systematically offer multiple mathematics pathways to a larger population of students. The rule preserves institutional flexibility to determine which developmental courses or interventions are best suited to student needs. It allows institutions to more easily monitor students’ progress within pathways. At the same time, the rule change provides institutions with the assurance they need that students are adequately prepared for the appropriate college-level courses required for students’ majors. Most importantly for the NMP, students who complete the Foundations of Mathematics Reasoning or a similar course can now be classified as TSI complete before registering for college-level courses in statistics or contemporary mathematics.

For more information about the statewide-negotiated rulemaking process that developed the rule change, a list of the rulemaking committee members, and additional background information can be found on the [THECB](#) and the [Dana Center](#) websites.

The Dana Center and TACC will work closely with THECB to provide advice to institutions about how to report and transcript the new TSI designations in the coming months.

**Can four-year institutions implement the NMP?**

The NMP is not just for two-year institutions. NMP is both a model for reform and a set of curricular materials. As a model for reform, NMP is based on four fundamental principles:
1. Multiple pathways with relevant and challenging mathematics content aligned to specific fields of study
2. Acceleration that allows students to complete a college-level math course more quickly than in the traditional developmental math sequence
3. Intentional use of strategies to help students develop skills as learners
4. Curriculum design and pedagogy based on proven practice.

Four-year institutions (like two-year institutions) may endorse the model and use their own courses and curricular strategies to implement the model. They are also welcome to join the initiative as active-learning sites that implement the NMP curricular materials. Active-learning institutions work with a mentor institution to prepare for implementation in the 2014–2015 or 2015–2016 academic year. An active-learning site is partnered with a codevelopment college to observe the implementation process and receive support for its own planning.

**How can I learn more about transfer and applicability issues related to the NMP?**

The Dana Center offers many resources and events to help you learn more. For the most up-to-date resource list, visit the NMP policy resources page on the Dana Center website: www.utdanacenter.org/higher-education/higher-education-resources/policy-resources/.