I. Course sequencing and prerequisite quesion

1. What are the mathematics graduation requirements for Foundation High School Program?

Students are required to earn credit for Algebra I, geometry, and one additional mathematics course from the following list (subject to prerequisite requirements) per Texas Administrative Code §74.12:

- Mathematical Models with Applications
- Mathematical Applications in Agriculture, Food, and Natural Resources
- Digital Electronics
- Financial Mathematics
- Applied Mathematics for Technical Professionals
- Accounting II
- Manufacturing Engineering II
- Robotics II
- Algebra II
- Precalculus
- Advanced Quantitative Reasoning
- Independent Studies in Mathematics
- Discrete Mathematics for Problem Solving
- Algebraic Reasoning
- Statistics
- Advanced Placement (AP) Statistics
- AP Precalculus
- AP Calculus AB
- AP Calculus BC
- International Baccalaureate (IB) Mathematics: Analysis and Approaches Standard Level
- IB Mathematics: Analysis and Approaches Higher Level
- IB Mathematics: Applications and Interpretations Standard Level
- IB Mathematics: Applications and Interpretations Higher Level
- AP Computer Science
- IB Computer Science Higher Level
- Engineering Mathematics
- Statistics and Business Decision Making
- Mathematics for Medical Professionals
- Discrete Mathematics for Computer Science
- Pursuant to the Texas Education Code (TEC) §28.025(b-5)
- Pursuant to TEC §28.002(g-1)

2. What are the mathematics graduation requirements for an endorsement?

Students are required to earn a fourth mathematics credit. To earn a Science, Technology, Engineering and Mathematics or STEM endorsement, one of these mathematics credits must be Algebra II. For the mathematics pathway to the STEM endorsement, students must earn a total of five mathematics credits, including Algebra I, Geometry, Algebra II, and two courses for

which Algebra II is a prerequisite. The course options for endorsements can be found in the following list (subject to prerequisite requirements) per Texas Administrative Code §74.13:

- Algebra II
- Precalculus
- Advanced Quantitative Reasoning
- Independent Studies in Mathematics
- Discrete Mathematics for Problem Solving
- Algebraic Reasoning
- Statistics
- Advanced Placement (AP) Statistics
- AP Precalculus
- AP Calculus AB
- AP Calculus BC
- International Baccalaureate (IB) Mathematics: Analysis and Approaches Standard Level
- IB Mathematics: Analysis and Approaches Higher Level
- IB Mathematics: Applications and Interpretations Standard Level
- IB Mathematics: Applications and Interpretations Higher Level
- AP Computer Science
- IB Computer Science Higher Level
- Engineering Mathematics
- Statistics and Business Decision Making
- Mathematics for Medical Professionals
- Discrete Mathematics for Computer Science
- Pursuant to the Texas Education Code (TEC) §28.025(b-5)
- Pursuant to TEC §28.002(g-1)
- Pursuant to TEC §28.014 (College Prep Mathematics)

3. What are the prerequisites for high school mathematics courses?

Prerequisites are found in the General Requirements section of the introduction in the Texas Essential Knowledge and Skills for each course . They can also be found in the Mathematics Prerequisite Table above.

4. Do kindergarten through grade 8 math courses have prerequisites?

No, however, the material for each grade builds to the next grade. A student missing the material of one grade may be at a disadvantage in subsequent grade levels or classes.

5. May one-half credit from paragraph TAC §74.12(b)(2)(A) [third credit only] be combined with one-half credit from paragraph TAC §74.13(b)(2)(B) [third or fourth credit]?

Yes, TAC §74.12(b)(2)(A) states, "[t]he additional credit may be selected from . . . a combination of two half credits from two different courses, subject to prerequisite requirements, from the following courses or a credit selected from the courses listed in subparagraph (B) of this paragraph."

6. What courses may only count as a third mathematics credits?

These courses are listed in 19 Texas Administrative Code (TAC) §74.12(b)(2)(A) and the Mathematics Prerequisite Table.

7. What courses may count as either a third or fourth mathematics credit?

These courses are listed in 19 Texas Administrative Code (TAC) §74.12(b)(2)(B) and the Mathematics Prerequisite Table.

8. What course may only count as a fourth mathematics credit?

It is College Preparatory Mathematics listed in Texas Education Code §28.014. This course is listed in 19 Texas Administrative Code (TAC) §74.13(e)(4) and the Mathematics Prerequisite Table.

9. What career and technical education courses may count for math credit?

These courses are listed in Texas Administrative Code (TAC) §74.12(b)(2) for the third mathematics credit and TAC §74.13(e)(2) and (5) for the fourth mathematics credit. Also, this may be listed in paragraph (a) of the Texas Essential Knowledge and Skills or TEKS for the course. Alternatively, you can use the Mathematics Prerequisite Table at the top of this web page.

10. May any course satisfy mathematics graduation requirements?

No, only those courses listed in 19 TAC §74.12(b)(2) or 19 TAC §74.13(e)(2), (4), or (5), may count for mathematics credit. These courses are also listed in the Mathematics Prerequisite Table.

11. How can a student satisfy prerequisite requirements?

SBOE rules in 19 Texas Administrative Code §74.11(j) establish that a student may not be enrolled in a course that has a required prerequisite unless:

> (1) the student has successfully completed the prerequisite course(s);
>
> (2) the student has demonstrated equivalent knowledge as determined by the school district; or
>
> (3) the student was already enrolled in the course in an out-of-state, an out-of-country, or a Texas nonpublic school and transferred to a Texas public school prior to successfully completing the course."

Note: if the second subparagraph is appropriate, we suggest recording how that decision was reached for each individual in a letter and including that letter in the student's permanent file in case questions arise in the future.

12. Must students receive credit for Grade 8 Mathematics before enrolling in Algebra I?

Algebra I has as a prerequisite of Grade 8 or its equivalent. There is no prescription in law and rule on what the equivalent of Grade 8 Mathematics is. However, students should be able to demonstrate proficiency in all the Grade 8 Math Texas Essential Knowledge and Skills (TEKS) before enrolling in Algebra I.
For questions regarding the impact of this decision on testing, please contact the Student Assessment Division at (512) 463-9536 or at the Student Assessment Help Desk.

13. A student has not completed Algebra I. Can they still enroll in Geometry?

Yes, if a district allows students to take Algebra I and Geometry concurrently per Texas Education Code §28.025(b-6).
If the district decides not to permit concurrent enrollment, then Algebra I remains a required prerequisite for Geometry. In this case, a student must meet prerequisite requirements for each course as listed in Texas Administrative Code (TAC) §74.11 see question #11 above.

14. May a student take Algebra I and Geometry concurrently?

Yes, if a district allows students to take Algebra I and Geometry concurrently per Texas Education Code §28.025(b-6).
If the district decides not to exercise this provision, then Algebra I remains a required prerequisite for Geometry.

15. May a student take Algebra I and concurrently with other math courses?

A student must meet prerequisite requirements for each course as listed in the Texas Essential Knowledge and Skills for each course and the table above. Texas Administrative Code (TAC) §74.11 gives the requirements for enrolling in a course with prerequisites (see question #11 above for these conditions to meet the prerequisite requirements and the Mathematics Prerequisite Table at the top of this webpage for the prerequisites).

16. May a student take other combinations of math courses concurrently?

Yes, if there is no prerequisite conflict. For example, a student may take Algebraic Reasoning and Algebra II concurrently as both have a prerequisite of Algebra I. However, Algebra II and Precalculus must be in accordance with Texas Administrative Code (TAC) §74.11 as Precalculus has Algebra II as a prerequisite.

17. May a student take Mathematical Models with Applications (Math Models or MMA) after Algebra II?

Yes, there are no sequencing or prerequisite conflicts. Please note that as Math Models may only count as a third credit, Algebra II will serve as the fourth credit, per Texas Administrative Code §74.13(e)(3).

18. May a student use Mathematical Models with Applications and Financial Mathematics to fulfill the mathematics graduation requirements?

No, both courses can only count as a third mathematics credit per Texas Administrative Code §74.12(b)(2)(A).

19. Does Strategic Learning for High School Mathematics satisfy a mathematics graduation requirement?

No, Strategic Learning for High School Mathematics is an innovative course. As such, it can only satisfy statewide elective credit.

20. Do the mathematics innovative courses satisfy a mathematics graduation requirement?

No, innovative courses can only serve as statewide elective credits.

21. Can a student take a third mathematics credit course such as Mathematical Models with Applications or Financial Mathematics after a fourth mathematics credit course such as Algebra II or Statistics?

Yes, Texas Administrative Code §74.13(e)(3) permits students to take their fourth credit mathematics course before the third mathematics credit course.

II. Endorsemsent and Other graduation questions

22. May a student use Mathematical Models with Applications to satisfy an endorsement?

For the most part, Mathematical Models with Applications may be used for a third mathematics credit for students pursuing every pathway of every endorsement, EXCEPT the mathematics pathway to the STEM (Science, Technology, Engineering, and Mathematics) endorsement [TAC §74.13(f)(1)(C)] which requires Algebra II and two courses with Algebra II as a prerequisite.

23. May a student use Mathematical Models with Applications to satisfy the math requirement for the distinguished level of achievement?

Yes, Mathematical Models with Applications may serve as a third mathematics credit in pursuit of the distinguished level achievement. However, Algebra II MUST be the fourth mathematics credit to satisfy those requirements.

24. What math courses are necessary for a distinguished level of achievement?

Algebra II and any other additional mathematics courses that are necessary to complete the requirements of the Foundation High School Program and the student's chosen pathway to an endorsement.

25. What math courses are options for the math pathway to the STEM endorsement?

The mathematics pathway to the Science, Technology, Engineering, and Mathematics (STEM) endorsement [TAC §74.13(f)(1)(C)] requires Algebra II and two courses for which Algebra II is a prerequisite.

III. Questions specific to certain courses

26. What are the requirements to enroll in College Preparatory Mathematics?

Students must complete the requirements for the Foundation High School Program, that is three mathematics credits: Algebra I, Geometry, and one more that is listed in Texas Administrative Code §74.12(b)(2) before enrolling in College Preparatory Mathematics. TAC 74.13(e)(2) says one full credit may be awarded to satisfy a fourth math credit after the three math credits have been earned under the Foundation High School Program and after successful completion* of the college prep mathematics course. Note: the Texas College Bridge Mathematics course is designed as one full credit course. Where coursework and/or college preparation assessment (SAT/ACT/TSIA) indicate the student is not ready to perform entry-level college coursework.

27. What are the requirements for the course listed as "pursuant to Texas Education Code §28.025(b-5)"?

The requirements for the course listed "pursuant to Texas Education Code §28.025(b-5) are —

- Students must complete Algebra II.
- The course must be endorsed by an institution of higher education for course for which
    - the student can receive course credit from the institution, or
    - the student can use the course as prerequisite for a course that they would receive course credit from the institution.

28. What are the requirements for the course listed as "pursuant to Texas Education Code §28.002(g-1)"?

Texas Education Code §28.002(g-1) states —

"(1) The district develops a program under which the district partners with a public or private institution of higher education and local business, labor, and community leaders to develop and provide the courses; and

(2) The course or other activity allows students to enter:

(A) a career or technology training program in the district's region of the state;

(B) an institution of higher education without remediation;

(C) an apprenticeship training program; or

(D) an internship required as part of accreditation toward an industry-recognized credential or certificate for course credit."

29. What are the differences between College Preparatory Mathematics and the course listed as "pursuant to Texas Education Code (TEC) §28.025(b-5)"?

Both courses must be endorsed by an institution of higher education, and the following criteria are met:

- The course pursuant to TEC §28.025(b-5) requires Algebra II as a prerequisite.
- The course pursuant to TEC §28.025(b-5) may be used as either a third or fourth mathematics credit. College Preparatory Mathematics can only serve as a FOURTH mathematics credit toward graduation.

- College Preparatory Mathematics requires three mathematics credits: Algebra I, Geometry, and one other.

30. How do we count College Algebra?

It is a district decision how to award high school credit for a College Algebra course. Here are three options —

- the course is determined to meet the requirements for a course pursuant to Texas Education Code (TEC) §28.025(b-5),
- the course is determined to cover all of the TEKS (Texas Essential Knowledge and Skills) for a TEKS-based mathematics course such as Algebra II, or
- the course is determined to cover all of the TEKS of Independent Studies in Mathematics.

31. A student took Algebra I before high school in another state but did not record it on a high school transcript for the course. Can we award credit for the course?

In Texas, Texas Administrative Code (TAC) §74.26(b) allows students to earn high school credit at any grade or after any amount of instruction if the student demonstrates proficiency in the subject matter. Further, TAC §74.26(a)(2) gives districts the authority to evaluate student's knowledge and place them in classes appropriately. If the district determines that the student fulfills the state requirements (demonstrates proficiency in the Texas Essential Knowledge and Skills (TEKS) for the course) and local requirements, then the district may award credit.

32. When evaluating a course from another state that does not use a name listed in the TEKS, when can we award credit for it?

Districts should compare the material to the Texas Essential Knowledge and Skills (TEKS). If the district determines that the material covered all of the TEKS for a given course and the student can demonstrate proficiency in the subject matter, then credit may be awarded for that TEKS-based course.

VI. Questions regarding teacher certification

33. Where can I find the certifications that will allow me to teach a mathematics course?

The certifications for kindergarten – grade 6 (self-contained) are listed in Texas Administrative Code 19 TAC §231.15.
For grades 6 – 8, the relevant portion of the Texas Administrative Code is 19 TAC §231.61; defer questions about teaching high school courses in middle school to Educator Certification.
For grades 9 – 12, the relevant portion of the code is 19 TAC §231.191. This section applies to all mathematics courses except for Algebraic Reasoning, which is listed in 19 TAC §231.193, and Statistics, which is listed in 19 TAC §231.195.

34. What certification is needed to Algebra I in middle school?

Any certificate listed in 19 Texas Administrative Code (TAC) §231.61 that expressly allows for the teaching of Algebra I or any certificate that is also listed in 19 TAC §231.191.

35. What certification does a teacher need to teach high school courses other than Algebra I in middle school?

Any certificate that is listed in 19 TAC §231.191, §231.193, or §231.195.

36. What certificates does a teacher need to teach innovative courses?

The certifications for innovative courses are listed under the Teacher Qualifications section of the course description.

37. What certificates allow for career and technical education (CTE) courses to count for mathematic credit toward graduation?

Any certificate listed for the given CTE course will allow students to earn mathematics credit toward graduation.

V. Questions regarding various assessments

38. Does TEA (Texas Education Agency) require all students to take the TSI?

No, the Texas Success Initiative Assessment is an assessment offered by our colleagues at the Texas Higher Education Coordinating Board (THECB).

39. Who do I speak to if I need help with ESTAR (Elementary School Student in Texas Algebra Ready) or MSTAR (Middle School Student in Texas Algebra Ready) (Middle School Student in Texas Algebra Ready)?

ESC (Education Service Center) Region 13 manages the ESTAR/MSTAR help desk at mathtx@esc13.net or 1-855-462-8489.

40. How is ESTAR/MSTAR different from the TFAR (Texas Formative Assessment Resource)?

Elementary School Students in Texas: Algebra Ready (ESTAR) and Middle-School Students in Texas: Algebra Ready (MSTAR) are assessments of Algebra readiness. These assessments provide universal screening for grade-level readiness and progress monitoring of algebraic foundations for grade 2 to grade 8 students. Additional diagnostic assessments can be administered to determine specific areas of targeted development. The Texas Formative Assessment Resource or TFAR is a free online platform that helps educators design, give, and share formative assessments of grade-level content student expectations.

Both are optional and free to Texas school districts and public charter schools.

VI. Additional Common Questions

42. My student was denied entry into an advanced or accelerated mathematics class. What rights do I have as a parent?

The placement of students in an advanced or accelerated class is a local district decision. The parent has the right to request of the district, with the expectation that the request is not unreasonably denied, that their student be placed in an accelerated class unless the school expects that the child cannot perform satisfactorily in the class (TEC §26.003(3)(B)).

43. What does a Middle School Advance Mathematics Program look-like?

Any program where students demonstrate proficiency for the Grades 6 through 8 mathematics Texas Essential Knowledge and Skills (TEKS) and allows those students to take Algebra I in grade 8.

44. Are there instructional time requirements for mathematics?

There are no state-mandated instructional time requirements. The State Board of Education (SBOE) rules in 19 TAC §74.2 (elementary) and 19 TAC §74.3 (secondary) require that a district "must ensure that sufficient time is provided for teachers to teach and for students to learn" all of the Texas Essential Knowledge and Skills (TEKS) for each subject of the required curriculum.

45. How do we find the TEKS for math?

The Mathematics Texas Essential Knowledge and Skills (TEKS) are listed in Chapter 111 of the Texas Administrative Code.

46. Where would I find the Supporting Information documents, Interactive Mathematics Glossary, Vertical Alignment charts, or other documents?

The Mathematics Supporting Information documents may be found on the mathematics webpage and the Texas Gateway.