



MAT 112

Precalculus

5 credit hours/5 contact hours

Catalog Description This course includes algebraic, exponential, logarithmic and trigonometric functions and their graphs; analytic trigonometry; analytic geometry; and applications of trigonometry. Students who take MAT 112 cannot receive credit for MAT 110 or MAT 111.

Prerequisite Permission of the department and MAT 102 or MAT153 (B or higher) or appropriate placement test score.

Textbook and Required Materials

Precalculus, 4th edition, by Lial, Hornsby, & Schneider (Addison Wesley, 2009)

TI-83 (or TI-84 or TI-85 or TI-86) Graphics Calculator (Texas Instruments)

The TI-89 and TI-92 calculators are not allowed in this course.

Core Curriculum Competencies

All courses approved for the general education core curriculum develop a student's critical thinking and/or communication skills.

This course develops critical thinking skills through instruction that emphasizes the understanding of mathematical concepts and the ability to apply these concepts to solving a problem. This will be demonstrated by assessments at the end of each unit and on the common final exam. The student will demonstrate the following critical thinking objectives:

- Solve polynomial, rational, exponential, logarithmic, and radical equations using mathematical principles in a logical process.
- Solve systems of equations using various mathematical methods including elimination, substitution, graphing, and matrices in a logical process.
- Apply mathematical principles in a logical process to solve real world problems involving polynomial, rational, exponential, logarithmic, and radical functions as well as systems of equations.
- Solve rational and polynomial inequalities and systems of inequalities using algebraic and graphical methods in a logical process.
- Evaluate trig expressions and solve trigonometric, inverse trigonometric, and complex equations using mathematical principles including identities, theorems, and definitions in a logical process.
- Solve real world problems involving triangles, vectors, and conics by applying mathematical principles in a logical process.
- Convert from parametric form and polar form to rectangular form and rectangular to parametric and polar by applying mathematical principles in a logical process.

This course develops communication skills through instruction that emphasizes the presentation of mathematical ideas in appropriate, clear, and precise mathematical language. The student will demonstrate the following communication objectives:

- Graph polynomial, rational, exponential, logarithmic, and radical functions, interpret the graphs, and explain their properties using appropriate, clear, and precise mathematical symbols and terminology.
- Interpret and explain solutions of polynomial, rational, exponential, logarithmic, and radical equations and real world problems as well as systems of equations using appropriate, clear, and precise mathematical symbols and terminology.

- Graph polar and parametric equations, trigonometric functions, inverse trigonometric functions, and conics, interpret the graphs, and explain their properties using clear, appropriate, and precise mathematical symbols and terminology.
- Explain solutions to problems involving trigonometry using clear, appropriate, and precise mathematical symbols and terminology.

Grading System and Policy The College-wide grading scale is

91-100 = *A*, 81-90 = *B*, 71-80 = *C*, 65-70 = *D*, below 65 = *F*

There will be a comprehensive departmental final exam, which everyone must take (no exemptions), and which counts 25% of the final grade. The remaining 75% will be specified by your instructor's syllabus addendum. Part or all of your evaluation in this course may be without your calculator.

Attendance/ Withdrawal Before attending classes, you must meet all prerequisites and officially register for all courses. Prompt and regular attendance is your responsibility. You are responsible for all material covered and all assignments made in class. Any time you are absent from a class, laboratory or other scheduled events, it is your responsibility to make satisfactory arrangements for any make-up work permitted by the instructor.

An absence is defined as nonattendance for any reason, including illness, emergency or official leave. If you arrive late to class, you may not be allowed into the classroom and may be considered absent for that period. If you leave before the instructor dismisses class, you may also be considered absent. All class sessions are important. Any time you miss a class you increase your risk of making a failing grade.

If you quit coming or participating in the course and do not officially withdraw by the withdrawal date for each semester, you will receive a grade of *F*. Your instructor cannot assign a grade of *W*. If you receive financial aid or veterans' aid, your aid may be revised as a result of any changes in your course schedule.

Instructor availability Your instructor is available to you outside of class for academic assistance. Full-time faculty members maintain and post regularly scheduled office hours. Part-time faculty members are accessible in a variety of ways, which may include conferences before and after class or by appointment, telephone conferences, and E-mail. The phone number for reaching your instructor is provided on your syllabus addendum.

See your syllabus addendum This is a departmental syllabus for all sections of the course. As such, it tries to address issues common to all sections. There will be issues (grading details, office hours, and the like) that are specific to your section, and these details will be covered in an addendum issued by your instructor.

Activated Electronic Communication Devices

These devices, such as cell phones and pagers are NOT permitted in TTC classrooms. On-call emergency personnel are required to report to their instructors and cannot communicate by electronic means during a testing situation.

For Students Enrolled in Online or Other Distance-Learning Sections

To confirm that you are actively involved in this course you need to contact the instructor at least once per week. Forms of contact can include (but are not limited to) posting/receiving emails, participating in online class discussions or chat rooms, and completing and submitting course assignments. Please see the instructor's addendum for any additional instructions.

ADA Statement The College will make reasonable accommodations for persons with documented disabilities. Students with disabilities should notify Services for Students with Disabilities (located in the Student Success Center) and their instructors of any special needs. Instructors should be notified on the first day of classes.

Textbook Portions Covered

Unit 1	Equations, Inequalities, Functions & Graphs, Polynomial Functions	1.4, 1.6-1.7, 2.1-2.3, 2.6-2.8, 3.1 – 3.4
Unit 2	Rational, Exponential & Logarithmic Functions	3.5, 4.1 – 4.6
Unit 3	Trigonometric Functions & Identities Circular Functions & Their Graphs	5.1–5.4, 6.1–6.5, 7.1–7.4
Unit 4	Analytic Trigonometry & Trigonometric Applications	7.5–7.7, 8.1–8.8
Unit 5	Systems, Binomial Theorem & Analytic Geometry	9.1, 9.2, 9.5, 9.6, 10.1–10.4, 11.4

College Information TTC uses Campus Cruiser e-mail as the standard communication system to send information to students and uses TTC Express to post final course grades. To access your accounts go to www.tridenttech.edu.

Supplementary Help: The Learning Center (920 bldg, rm 211) offers additional resources for help with this course, including tutoring and publisher dvds/ videos.

Department Head Elizabeth White at 574-6538

Division Admin. Asst. 574-6015 (emergencies only)

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