

CORE CURRICULUM COMPONENT APPLICATION
Texarkana College

Part I: Course Information

Course Type

- Existing/Restructured
 New Course

Course Prefix & Number: Math 2412

Texas Common Course Number (TCCN): 2412

Course Title: Pre-Calculus

Course Catalog Description

MATH 2412: (4,3,2) In-depth combined study of algebra, trigonometry, and other topics for calculus readiness.

Course Prerequisites:

Prerequisites: MATH 0033 or satisfactory placement scores (TSI = 270 or above—after August 2013, students will be required to meet new scores based on the TSI assessment).

Available Online?

- Yes
 No

Part II: THECB Course Objectives

Upon successful completion of this course, students will:

1. Demonstrate and apply knowledge of properties of functions.
2. Recognize and apply algebraic and transcendental functions and solve related equations.
3. Apply graphing techniques to algebraic and transcendental functions.
4. Compute the values of trigonometric functions for key angles in all quadrants of the unit circle measured in both degrees and radians.
5. Prove trigonometric identities.
6. Solve right and oblique triangles.

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Part III: THECB Skill Objectives

- 1. Critical Thinking Skills:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- 2. Communication Skills:** to include effective development, interpretation and expression of ideas through written, oral and visual communication
- 3. Empirical and Quantitative Skills:** to include applications of scientific and mathematical concepts.

Part IV: Course Student Learning Outcomes (SLO)

Upon successful completion of this course, students will:

1. Demonstrate and apply knowledge of properties of functions.
2. Recognize and apply algebraic and transcendental functions and solve related equations.
3. Apply graphing techniques to algebraic and transcendental functions.
4. Compute the values of trigonometric functions for key angles in all quadrants of the unit circle measured in both degrees and radians.
5. Prove trigonometric identities.
6. Solve right and oblique triangles.

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| Skill Objective: | Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information |
| THECB Course Objective | Recognize and apply algebraic and transcendental functions and solve related equations. |
| Course Student Learning Outcome | Recognize and apply algebraic and transcendental functions and solve related equations. |
| General Learning Activities | Students will collect data and use trig functions to create a mathematical model that represents the data. Students will then test their models to verify the validity of the model they created. |
| Assessment <i>Must Include Assignment & Rubric</i> | The assignment will be to choose and gather two sets of data and construct a scatter plot for each data set then use knowledge of trigonometric functions to create an equation that models each set of data. Students will test their models to evaluate whether their models are valid. They will then analyze their results and make a comparison of the two sets of data. This will be assessed using the Critical Thinking Skills rubric. |

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| Skill Objective: | Communication Skills: to include effective written, oral, and visual communication |
| THECB Course Objective | Recognize and apply algebraic and transcendental functions and solve related equations. |
| Course Student Learning Outcome | Recognize and apply algebraic and transcendental functions and solve related equations. |
| General Learning Activities | Students will collect data and use trig functions to create a mathematical model that represents the data. Students will then test their models to verify the validity of the model they created. |
| Assessment <i>Must Include Assignment & Rubric</i> | The assignment will be to communicate in a written report and class presentation the results of their data collection, analysis and comparison. The report and presentation will include a scatterplot of the data, the mathematical model/equation that represents the data, and a comparison of the data. The Communication Skills rubric will be used to assess communication skills. |

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| Skill Objective: | Empirical and Quantitative Skills: to include applications of scientific and mathematical concepts. |
| THECB Course Objective | Recognize and apply algebraic and transcendental functions and solve related equations. |
| Course Student Learning Outcome | Recognize and apply algebraic and transcendental functions and solve related equations. |
| General Learning Activities | Students will collect data and use trig functions to create a mathematical model that represents the data. Students will then test their models to verify the validity of the model they created. |
| Assessment <i>Must Include Assignment & Rubric</i> | The assignment will be to use graphing techniques to plot the data on a scatter plot then apply knowledge of trigonometric functions to create a mathematical model/equation that represents the data. Students will then test their model to check its validity. The Empirical and Quantitative Skills rubric will be used to assess empirical and quantitative skills. |

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