



# MATH 2412.045 DC - Precalculus F2F

Course Syllabus: Fall 2023

*“Northeast Texas Community College exists to provide personal, dynamic learning experiences empowering students to succeed.”*

**Instructor: Olivia Juarez**

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Office Hours	Monday	Tuesday	Wednesday	Thursday	Online
	7:20-7:55 AM	7:20-7:55 AM	7:20-7:55 AM	7:20-7:55 AM	By appointment

***This syllabus serves as the documentation for all course policies and requirements, assignments, and instructor/student responsibilities.***

*Information relative to the delivery of the content contained in this syllabus is subject to change. Should that happen, the student will be notified.*

**Course Description:** In-depth combined study of algebra, trigonometry, and other topics for calculus readiness. Four hours credit.

**Prerequisite(s):** MATH 1314 with a grade of “C” or better or equivalent

**Student Learning Outcomes:**

2412.1 Demonstrate and apply knowledge of properties of functions.

2412.2 Recognize and apply algebraic and transcendental functions and solve related equations.

2412.3 Apply graphing techniques to algebraic and transcendental functions.

2412.4 Compute the values of trigonometric functions for key angles in all quadrants of the unit circle measured in both degrees and radians.

2412.5 Prove trigonometric identities.

2412.6 Solve right and oblique triangles.

**Core Curriculum Purpose and Objectives:**

Through the core curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world; develop principles of personal and social responsibility for living in a diverse world; and advance intellectual and practical skills that are essential for all learning.

Courses in the foundation area of mathematics focus on quantitative literacy in logic, patterns, and relationships. In addition, these courses involve the understanding of key mathematical concepts and the application of appropriate quantitative tools to everyday experience.

## **Program Student Learning Outcomes:**

### Critical Thinking Skills

CT.1 Students will demonstrate the ability to 1) analyze complex issues, 2) synthesize information, and 3) evaluate the logic, validity, and relevance of data.

### Communication Skills

CS.1 Students will effectively develop, interpret and express ideas through written communication.

### Empirical and Quantitative Skills

EQS.1 Students will manipulate numerical data or observable facts by organizing and converting relevant information into mathematical or empirical form

EQS.2 Students will analyze numerical data or observable facts by processing information with correct calculations, explicit notations, and appropriate technology.

EQS.3 Students will draw informed conclusions from numerical data or observable facts that are accurate, complete, and relevant to the investigation.

## **Evaluation/Grading Policy:**

Tests/Exams 60%

Daily/Homework 20%

Final Exam 20%

Daily work will be submitted in myMathLab and tests will be taken during class format. There will be no exemptions from the college final.

“A” 90-100

“B” 80-89

“C” 70-79

“D” 60-69

“F” below 60

## **Required Instructional Materials:**

Sullivan/Sullivan, Precalculus Concepts through Functions – A Right Triangle Approach to Trigonometry, 4th Edition, 2010 with MyLabMath

**Publisher:** Pearson, Boston, MA

**ISBN Number:** 13:978-0321645081

**Optional Instructional Materials:** printed copy of Sullivan/Sullivan, Precalculus Concepts through Functions – A Right Triangle Approach to Trigonometry, 2nd Edition

**Minimum Technology Requirements:** laptop or computer for online homework, graphing calculator

**Required Computer Literacy Skills:** none

**Course Structure and Overview:** This is a 16-week embedded dual credit course designed for students who are concurrently enrolled in both a high school precalculus class and the college-level class. The course is managed with information and activities that are posted on the Blackboard Learning Management System. A typical class involves general participation by all students in discussions regarding mathematical principles and procedures being studied. Students are required to complete online homework in addition to in-class quizzes, projects, and exams. It is very important students keep up with course materials and assignments since this is a college-level course. Students are expected to complete all assignments by due dates.

**Communications:** The college's official means of communication is via your campus email address. I will use your campus email address, Mt Vernon email address, Blackboard, Google Classroom and MyMathLab to communicate with you outside of class. Make sure you keep your campus email cleaned out and below the limit so you can receive important messages.

**Institutional/Course Policy:** This is a dual credit class held on the Mt Vernon campus. Students are required to follow the attendance and dress code as well as all other rules and acceptable use policies stated in the MVHS student code of conduct. Students are expected to behave as responsible college students; therefore, no academic information about a student can be given to another individual or parents without the expressed written consent of the student.

### **Alternate Operations During Campus Closure and/or Alternate Course Delivery Requirements**

In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Northeast Texas Community College to move to altered operations. During this time, Northeast Texas Community College may opt to continue delivery of instruction through methods that include, but are not limited to, online through the Blackboard Learning Management System, online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor NTCC's website (<http://www.ntcc.edu/>) for instructions about continuing courses remotely, Blackboard for each class for course-specific communication, and NTCC email for important general information.

Additionally, there may be instances where a course may not be able to be continued in the same delivery format as it originates (face-to-face, fully online, live remote, or hybrid). Should this be the case, every effort will be made to continue instruction in an alternative delivery format. Students will be informed of any changes of this nature through email messaging and/or the Blackboard course site.

### **NTCC Academic Honesty/Ethics Statement:**

NTCC upholds the highest standards of academic integrity. The college expects all students to engage in their academic pursuits in an honest manner that is beyond reproach using their intellect and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. This course will follow the NTCC Academic Honesty and Academic Ethics policies stated in the Student Handbook. Refer to the student handbook for more information on these subjects.

### **ADA Statement:**

It is the policy of NTCC to provide reasonable accommodations for qualified individuals who are students with disabilities. This College will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to request accommodations. An appointment can be made with the Academic Advisor/Coordinator of Special Populations located in

Student Services and can be reached at 903-434-8264. For more information and to obtain a copy of the Request for Accommodations, please refer to the special populations page on the NTCC website.

**Family Educational Rights and Privacy Act (FERPA):**

The Family Educational Rights and Privacy Act (FERPA) is a federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. FERPA gives parents certain rights with respect to their children’s educational records. These rights transfer to the student when he or she attends a school beyond the high school level. Students to whom the rights have transferred are considered “eligible students.” In essence, a parent has no legal right to obtain information concerning the child’s college records without the written consent of the student. In compliance with FERPA, information classified as “directory information” may be released to the general public without the written consent of the student unless the student makes a request in writing. Directory information is defined as: the student’s name, permanent address and/or local address, telephone listing, dates of attendance, most recent previous education institution attended, other information including major, field of study, degrees, awards received, and participation in officially recognized activities/sports.

**Tentative Course Timeline (\*note\* instructor reserves the right to make adjustments to this timeline at any point in the term):**

Course Outline: All due dates for daily assignments are posted in myMathLab, project deadlines will be posted in blackboard and tests are due at the end of the class period. Tests must be taken on the date scheduled by the instructor unless the student makes arrangements with the instructor prior to the test. Failure to show on the test day will result in a failed test.

Week of	Topics Outline
Aug. 7-10	1.1 Functions, 1.2 The Graph of a Function, 1.3 Properties of Functions, 1.4 Library of Functions
Aug. 14-17	1.5 Graphing Techniques and Transformations, 1.6 Mathematical Models; Building Functions, 1.7 Building Mathematical Models Using Variation
Aug. 21-24	Test, 2.1 Properties of Linear Functions and Linear Models, 2.2 Building Linear Models from Data, 2.3 Quadratic Functions and Their Zeros
Aug. 28-31	2.4 Properties of Quadratic Functions, 2.6 Building Quadratic Models from Verbal Descriptions and Data, 2.7 Complex
Sept. 4-7	Test, 3.1 Polynomial Functions, 3.2 Properties of Rational Functions
Sept. 11-14	3.3 The Graphs of a Rational Function, 3.5 The Real Zeros of a Function, 3.6 Complex Zeros; Fundamental Theorem of Algebra
Sept. 18-21	Test, 4.1 Composite Functions, 4.2 One to One Functions, Inverse Functions, 4.3 Exponential Functions
Sept. 25-28	4.4 Logarithmic Functions, 4.5 Properties of Logarithmic Functions, 4.6 Logarithmic and Exponential Equations
Oct. 2-5	Test, 5.1 Angles and Their Measures, 5.2 Right Triangle Trigonometry, 5.3 Computing Trig Values of Acute Angles
Oct. 9-12	5.4 Trig Values of Any Angle, 5.5 Unit Circle, 5.6 Graphs of Sine and Cosine, 5.7 Graphs of the Tangent, Cotangent, Cosecant, and Secant

Oct. 16-19	5.8 Phase Shift and Sinusoidal Curve Fitting, Test, 6.1 The Inverse of Sine, Cosine and Tangent
Oct. 23-26	6.2 Inverse Trig Functions, 6.3 Solving Function, 6.4 Trigonometric Identities, 6.5 Sum and Difference Formulas
Oct. 30-Nov. 2	6.6 Double-angle and Half-angle Formulas, 6.7 Product to Sum and Sum to Product Formulas, Test
Nov. 6-9	7.1 Applications of Trigonometric Function, 7.2 The Law of Sines, 7.3 The Law of Cosines
Nov. 13-16	Test, 8.2 Polar Equations and Graphs, 8.3 The Complex Plane, and DeMoivre's Theorem, 8.4 Vectors
Nov. 20-23	Thanksgiving Week
Nov. 27-30	Test, 9.2 Parabolas, 9.3 Ellipse
Dec. 4-7	9.4 Hyperbolas, 9.5 Rotation of Axes, 9.7 Plane Curves and Parametric Equation
Dec. 11-14	Test, College Final