MATH 2412.045 DC - Precalculus F2F

Course Syllabus: Fall 2024

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

Instructor: Olivia Juarez
Office: MVHS Rm 303
Phone: (903) 537-3700 – High School Office
Email: ojuarez@ntcc.edu

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:
Inclusive Access Course: A discounted textbook fee is added to your student account to cover the cost of the required access code. Inclusive Access Content: 978-1-64087-078-9. You have access to a free digital textbook on openstax.org. If you would like a printed textbook, these are available for purchase.

Publisher: Lumen **ISBN Number:** 978-1-64087-078-9

Optional Instructional Materials:
Print Textbook Precalculus by OpenStax
Hardcover: ISBN-10: 1-938168-34-8 ISBN-13: 978-1-938168-34-5
Paperback: ISBN-13: 978-1-50669-812-0

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. 12-15	1.1 Functions and Function Notation, 1.2 Domain and Range, 1.3 Rates of Change and Behavior of Graphs, 1.4 Composition of Functions, 1.5 Transformation of Functions, 1.6 Absolute value Functions, 1.7 Inverse Functions
Aug. 19-22	Test 2.1 Linear Functions, 2.2 Graphs of Linear Functions, 2.3 Modeling with Linear Functions, 2.4 Fitting Linear Models Data, 3.1 Complex Numbers, 3.2 Quadratic Functions
Aug. 26-29	3.3 Power Functions and Polynomial Functions, 3.4 Graphs of Polynomial Functions, 3.5 Dividing Polynomials, 3.6 Zeros of Polynomial Functions, 3.7 Rational Functions, 3.8 Inverse Functions, 3.9 Modeling Using Variation
Sept. 3-6	Test, 4.1 Exponential Functions, 4.2 Graphs of Exponential Functions, 4.3 Logarithmic Functions, 4.4 Graphs of Logarithmic Functions
Sept. 9-12	4.5 Logarithmic Properties, 4.6 Exponential and Logarithmic Equations, 4.7 Exponential and Logarithmic Models, 4.8 Fitting Exponential Models to Data
Sept. 16-20	Test 5.1 Systems of Linear Equations in Two Variables, 5.2 Systems of Linear Equations in Three Variables, 5.3 Systems of Nonlinear Equations: Three Variables, 5.4 Partial Fractions, 5.5 Matrices and Matrix Operations

Sept. 23-26	5.6 Solving Systems with Gaussian Elimination, 5.7 Solving Systems with Inverses, 5.8 Solving Systems with Cramer's Rule, Test
Sept. 30-Oct.3	6.1 Sequences and Their Notations, 6.2 Arithmetic Sequences, 6.3 Geometric Sequences, 6.4 Series and Their Notaions, 6.5 Counting Principles
Oct. 7-10	6.6 Binomial Theorem, 6.7 Probability, Test 7.1 Angles
Oct. 14-17	7.2 Unit Circle: Sine and Cosine Functions, 7.3 The Other Trigonometric Functions, 7.4 Right Triangle Trigonometry, 8.1 Graphs of the Sine and Cosine Functions, 8.2 Graphs of the Other Trigonometric Functions
Oct. 21-24	8.3 Inverse Trigonometric Functions, Test, 9.1 Solving Trigonometric Equations with Identities
Oct. 28-31	9.2 Sum and Difference Identities, 9.3 Double-Angle, Half-Angle and Reduction Formulas, 9.4 Sum-to-Product and Product-to-Sum Formulas, 9.5 Solving Trigonometric Equations
Nov. 4-7	9.6 Modeling with Trigonometric Functions, Test, 10.1 Non-right Triangles: Law of Sines, 10.2 Non-right Triangles: Law of Sines
Nov. 11-14	10.3 Polar Coordinates, 10.4 Polar Coordinates: Graphs, 10.5 Polar Form of Complex Numbers, 10.6 Parametric Equations, 10.7 Parametric Equations: Graphs
Nov. 18-21	10.8 Vectors, Test, 11.1 Ellipse, 11.2 Hyperbola,
Nov. 25-28	Thanksgiving Week
Dec. 2-5	11.3 The Parabola, 11.4 Rotation of Axes, 11.5 Conic Sections in Polar Coordinates, Test
Dec. 9-12	12.1 Finding Limits: Numerical and Graphical Approaches, 12.2 Finding Limits: Properties of Limits, 12.3 Continuity, 12.4 Derivatives
Dec. 16-19	College Final