



# Precalculus – MATH 2412.032HY Hybrid

Course Syllabus: Spring 2024 (1<sup>st</sup> 8 weeks)

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

**Instructor: Dr. Doug Richey**

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Office	Monday	Tuesday	Wednesday	Thursday	Friday	Online
Hours	3:00 – 4:00	9:00 – 11:00 3:00 – 4:00	9:00 – 11:00	9:00 – 11:00 2:00 – 4:00	Online & Appointment & TEAMS	Everyday

***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 or equivalent with a grade of “C” or better

### **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: : Two major 150 point exams will be given, and together they will be 75% of the final grade. Homework exercises from textbook, online assignments and face to face activities will count 100 points and will be 25% of the final grade. Grade determination is: A - 90%; B - 80%; C - 70%; D - 60%; F - Below 60%**

**Required Instructional Materials: Pre-calculus**

**Publisher: OpenStax      ISBN Number: 101938168348**

**Optional Instructional Materials: None**

**Minimum Technology Requirements: Graphing calculator preferred**

**Required Computer Literacy Skills:** Students must have the ability to read and comprehend at a college level, be independently motivated, be responsible, be capable of self-instruction and have access to a computer with internet connection.

**Course Structure and Overview: Come to class regularly. Take notes. Ask questions. This is a hybrid class where students are required to access graded activities on blackboard online delivery of instruction.**

**Communications:** Phone messages and email will be responded to within six hours of receipt. All graded work will be returned the next class meeting following its submission.

**Institutional/Course Policy: Cell phone usage in the classroom will be coordinated by the professor. Students are expected to be respectful to classmates, professor and themselves. Students will be warned when using a phone inappropriately. A student will be removed for further disruption.**

### **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 Outline: (\*Note\* instructor reserves the right to make adjustments to this schedule at any point in the term.)**

#### **Chapter 1 Functions**

- 1.1 Functions and Functions Notation
- 1.2 Domain and Range
- 1.3 Rates of Change and Behavior of Graphs
- 1.4 Composition of Functions

#### **Chapter 2 Linear Functions**

- 2.1 Linear Functions
- 2.2 Graphs of Linear Functions
- 2.3 Modeling with Linear Functions

### **Chapter 3** Polynomial and Rational Functions

- 3.1 Complex Numbers
- 3.2 Quadratic Functions
- 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

### **Chapter 4** Exponential and Logarithmic Functions

- 4.1 Exponential Functions
- 4.2 Graphs of Exponential Functions
- 4.3 Logarithmic Functions
- 4.4 Graphs of Logarithmic Functions
- 4.5 Logarithmic Properties
- 4.6 Exponential and Logarithmic Equations

### **Midterm Homework Due and Examination February 7th, 2024**

### **Chapter 5** Trigonometric Functions

- 5.1 Angles
- 5.2 The Other Trigonometric Functions
- 5.3 Right Triangle Trigonometry
- 5.4 Unit Circle Analysis

### **Chapter 6** Periodic Functions

- 6.1 Graphs of the Sine and Cosine Functions
- 6.2 Graphs of the Other Trigonometric Functions
- 6.3 Inverse Trigonometric Functions
- 6.4 Solving Trigonometric Equations and Identities

### **Chapter 7** Trigonometric Identities and Equations

- 7.1 Sum and Difference Identities
- 7.2 Double-Angle, Half-Angle, and Reduction Formulas
- 7.3 Sum-to-Product and Product-to Sum Formulas
- 7.4 Solving Trigonometric Equations

### **Chapter 8** Further Applications of Trigonometry

- 8.1 Non-right Triangles: Law of Sines
- 8.2 Non-right Triangles: Law of Cosines
- 8.3 Polar Coordinates
- 8.4 Polar Coordinates: Graphs
- 8.5 Polar Form of Complex Numbers
- 8.6 Parametric Equations

### **Final Homework Due and Examination March 6th, 2024**

### **Chapter 10** Analytic Geometry

- 9.1 The Ellipse
- 9.2 The Hyperbola
- 9.3 The Parabola

