



## Precalculus - Math 2312.45D

### Course Syllabus: Spring 2019

“Northeast Texas Community College exists to provide responsible, exemplary learning opportunities.”

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Office Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Online
	3:22-4:00		3:22-4:00	3:22-4:00	3:22-4:00	By apt.

*The information contained in this syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.*

**Catalog Course Description (include prerequisites):** This is a standard first course in functional analysis with algebra, geometry, and geometric interpretations. Topics include the straight line, conics, translations, rotations, parametric equations, vectors, polar coordinates, and some curve sketching.

**Prerequisite:** MATH 1316 or equivalent

**Required Textbook(s):**

Sullivan/Sullivan, Precalculus Concepts through Functions – A Right Triangle Approach to Trigonometry, 2<sup>nd</sup> Edition, 2010

**Publisher:** Pearson, Boston, MA

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

Note: The NTCC Bookstore link is at [www.ntcc.edu](http://www.ntcc.edu).

**Recommended Reading(s):**

None

**Student Learning Outcomes:**

Upon successful completion of this course, students will

- 2312.1** Demonstrate an understanding and knowledge of the properties of functions.
- 2312.2** Recognize and apply algebraic and transcendental functions and to solve related equations both algebraically and graphically.
- 2312.3** Identify intervals of increasing, decreasing, or constant; estimate relative maxima and minima.
- 2312.4** Sketch algebraic curves with vertical, horizontal, and slant asymptotes and apply these

graphs to ideas of continuity.

**2312.5** Determine the standard equation of a conic with given conditions and solve applied problems involving a conic.

**2312.6** Solve applied problems with parametric forms, polar coordinates, vectors, and modeling.

**SCANS Skills:**

N/A

**Course Outline:**

**Chapter 1** Functions

- 1.1 Functions (Optional)
- 1.2 The Graph of a Function (Optional)
- 1.3 Properties of Functions
- 1.4 Library of Functions; Piecewise-defined Functions
- 1.5 Graphing Techniques: Transformations
- 1.6 Mathematical Models; Building Functions (Optional)
- 1.7 Building Mathematical Models Using Variation

**Chapter 2** Linear and Quadratic Functions

- 2.1 Properties of Linear functions and Linear Models
- 2.2 Building Linear Models from Data (Optional)
- 2.3 Quadratic Functions and Their Zeros (Optional)
- 2.4 Properties of Quadratic Functions
- 2.5 Inequalities Involving Quadratic Functions
- 2.6 Building Quadratic Models from Verbal Descriptions and from Data (Optional)
- 2.7 Complex Zeros of a Quadratic Function
- 2.8 Equations and Inequalities Involving the Absolute Value Function (Optional)

**Chapter 3** Polynomial and Rational Functions

- 3.1 Polynomial Functions and Models
- 3.2 Properties of Rational Functions
- 3.3 The Graph of a Rational Function
- 3.4 Polynomial and Rational Inequalities (Optional)
- 3.5 The Real Zeros of a Polynomial Functions
- 3.6 Complex Zeros; Fundamental Theorem of Algebra

**Chapter 4** Exponential and Logarithmic Functions

- 4.1 Composite Functions (Optional)
- 4.2 One-to-One Functions; Inverse Functions
- 4.3 Exponential Functions
- 4.4 Logarithmic Functions
- 4.5 Properties of Logarithms

## 4.6 Logarithmic and Exponential Equations

### **Chapter 8** Polar Coordinates; Vectors

8.1 Polar Coordinates

8.2 Polar Equations and Graphs

8.4 Vectors

### **Chapter 9** Analytic Geometry

9.1 Conics

9.2 The Parabola

9.3 The Ellipse

9.4 The Hyperbola

9.7 Plane Curves and Parametric Equations

### **Evaluation/Grading Policy:**

Tests/Exams 60%

Daily/Homework 20%

Final Exam 20%

“A” 90-100

“B” 80-89

“C” 70-79

“D” 60-69

“F” below 60

There will be no exemptions from the college final.

### **Student Responsibilities/Expectations:**

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.

### **NTCC Academic Honesty Statement:**

"Students are expected to complete course work in an honest manner, using their intellects and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. NTCC upholds the highest standards of academic integrity. This course will follow the NTCC Academic Honesty policy stated in the Student Handbook."

### **Academic Ethics**

The college expects all students to engage in academic pursuits in a manner that is beyond reproach. Students are expected to maintain complete honesty and integrity in their academic pursuit. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. Refer to the student handbook for more information on this subject.

### **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 Shannin Garrett, Academic Advisor/Coordinator of Special Populations located in the College Connection. She can be reached at 903-434-8218. For more information and to obtain a copy of the Request for Accommodations, please refer to the [NTCC website - Special Populations](#).

**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.

**Other Course Policies:**

There will be no cell phone usage in the classroom. Students will be warned if caught using a phone during class. A student will be removed from class if the disruption continues.

The college's official means of communication is via your campus email address. I will use your campus email address, Blackboard, 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.