Math 2412.001 Precalculus
Syllabus: Fall 2018

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

Dr. Jackie Johnston
Office: MS-120
Phone: 903.434.8305
Email: JJohnston@ntcc.edu

Office Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Online
	8:00 – 9:30 2:00 – 2:30	7:30 – 8:00 11:00 – 12:30 2:00 – 4:00	8:30 – 9:30 11:00 – 12:30	11:00 – 12:00	By Appointment	Everyday

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): Four credit hours. This is a standard first course in functional analysis with algebra, geometry, and geometric interpretations.
Topics include graphs, inverse functions, polynomial functions, rational and irrational functions, exponential and logarithmic functions, trigonometric functions, inverse trigonometric functions, Law of Sines, Law of Cosines, and analytic geometry.
Prerequisite: Math 1314 or equivalent. Four hours of class each week (Fall, Spring, Summer)

Required Textbook(s):
IMPORTANT: YOUR COURSE IS USING EXCLUSIVE ACCESS. THERE IS A DISCOUNTED TEXTBOOK FEE ADDED TO YOUR TUITION TO COVER THE COST OF THE REQUIRED MATERIALS. YOU WILL ACCESS YOUR ACCESS CODE ON BLACKBOARD IN THE ORIENTATION FOLDER ON THE FIRST CLASS DAY.

Good news: your textbook for this class is available for free online, in web view and PDF format! You can also purchase a print version, if you prefer, via the campus bookstore or from OpenStax on Amazon.com.

You can use whichever formats you want. Web view is recommended -- the responsive design works seamlessly on any device. If you buy on Amazon, make sure you use the link on your book page on openstax.org so you get the official OpenStax print version. (Simple printouts sold by third parties on Amazon are not verifiable and not as high-quality.)

ISBN Number: Print: 1938168348 Digital: 1947172069

Access a free PDF Version at www.openstax.org/details/precalculus.

Note: The NTCC Bookstore link is at www.ntcc.edu.

Recommended Reading(s):
None

Student Learning Outcomes:

Upon successful completion of this course, students will

2412.1 Recognize and apply algebraic and transcendental functions and to solve related equations both algebraically and graphically.

2412.2 Identify intervals of increasing, decreasing, or constant; estimate relative maxima and minima.

2412.3 Sketch algebraic curves with vertical, horizontal, and slant asymptotes and apply these graphs to ideas of continuity.

2412.4 Prove trigonometric identities.

2412.5 Solve right and oblique triangles.

2412.6 Determine the standard equation of a conic with given conditions and solve applied problems involving a conic.

2412.7 Solve applied problems with parametric forms, polar coordinates, vectors, and modeling.

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.

College 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.

SCANS Skills:
N/A

Course Outline:

Chapter 1 Functions

1.1 Functions and Function Notation
1.2 Domain and Range
1.3 Rates of Change and Behavior of Graphs (Optional)
1.4 Composition of Functions (Optional)
1.5 Graphing Techniques: Transformations
1.6 Absolute Value Functions (Optional)
1.7 Inverse Functions

Chapter 2 Linear Functions

2.1 Linear Functions
2.2 Graphs of Linear Functions (Optional)
2.3 Modeling with Linear Functions (Optional)
2.4 Fitting Linear Models to Data (Optional)

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 Polynomial Functions (Optional)
3.6 Zeros of Polynomial Functions
3.7 Rational Functions
3.8 Inverses and Radical Functions
3.9 Modeling Using Variation (Optional)

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 Properties of Logarithms
4.6 Logarithmic and Exponential Equations (Optional)
4.7 Exponential and Logarithmic Models (Optional)
4.8 Fitting Exponential Models to Data (Optional)

Chapter 5 Trigonometric Functions

5.1 Angles
5.2 Unit Circle: Sine and Cosine Functions

5.3 The Other Trigonometric Functions
5.4 Right Triangle Trigonometry

Chapter 6 Periodic Functions

6.1 Graphs of Sine and Cosine Functions
6.2 Graphs of Other Trigonometric Functions
6.3 Inverse Trigonometric Functions

Chapter 7 Trigonometric Identities and Equations

7.1 Solving Trigonometric Equations with Identities
7.2 Sum and Difference Identities
7.3 Double-Angle, Half-Angle, and Reduction Formulas
7.4 Sum-to-Product and Product-to-Sum Formulas (Optional)
7.5 Solving Trigonometric Equations
7.6 Modeling with Trigonometric Equations (Optional)

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 Form of Complex Numbers
8.5 Polar Form of Complex Numbers
8.6 Parametric Equations
8.7 Parametric Equations: Graphs
8.8 Vectors

Chapter 10 Analytic Geometry

10.1 The Ellipse
10.2 The Hyperbola
10.3 The Parabola
10.4 Rotation of Axis
10.5 Conic Sections in Polar Coordinates

Two major 100 point exams will be given, and together they will be 50% of the final grade. A comprehensive final exam worth 100 points will be 25% of the final grade. An average of a series of online homework, in class assignments (group work, discussions, Kahoot quizzes, etc.) will be 25% of the final grade.

2 Major Exams	50%
Homework/Special Assignments	25%
Comprehensive Final Exam	25%
Total:	100%

Assignments & Exams:

Submission of WebAssign homework problems will be determined on a section-by-section basis. WebAssign homework will be completed and submitted online. These assignments are graded automatically when submitted. Special assignments will consist of in class discussions as well as in class groupwork and Kahoot quizzes. Kahoot quizzes are graded upon completion. In class discussions or groupwork will be graded within 72 hours after due date. Exams will be in class and grades will be posted within 72 hours after due date**.**

Other Course Requirements:

A graphing calculator is required for this course. A TI-83/84 is recommended. Please contact instructor if you have any questions regarding the calculator requirement BEFORE purchasing. Note: The NTCC Bookstore link is at www.ntcc.edu.

Student Responsibilities/Expectations:

Attendance: Students are expected to attend every class. If a student has to miss class, he/she must contact the instructor prior to missing. Class attendance is vital to being successful in this class. Also, students must be self-motivated to keep up with the due dates, turn in assignments on time, and take exams as scheduled.

Students are expected to conduct themselves in a mature and respectful manner toward the Professor as well as other students. An orderly and cooperative classroom environment is essential for optimum learning to take place. 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 or any distracting behavior. A student will be removed from class if any disruption continues and must meet with the instructor and Vice President of Student Services before returning to class.

The college's official means of communication is via your campus email address. I will use your campus email address and Blackboard to communicate with you outide of class. Make sure you keep your campus email cleaned out and below the limit so you can receive important messages.

The instructor reserves the right to administratively drop a student who goes beyond two weeks in turning in online assignments unless the instructor is notified and given a valid reason for late assignments.

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