Pre Calculus – Math 2312 DC (Dual Credit)

Course Syllabus: Spring 2023

Instructor: Julie Wade
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Office Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Online
	2:40-3:40	2:40-3:40	2:40-3:40	2:40-3:40	2:52-3:40	n/a

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: 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. Three hours credit.

Prerequisite(s): MATH 1316 with a grade of "C" or better

Student Learning Outcomes:

2312.1 Demonstrate an understanding and knowledge of the properties of functions.

2312.2 Recognize and apply algebraic and transcendental functions 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.

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.

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Evaluation/Grading Policy:

Test Average	50%
Daily/Homework	30%
Final Exam	20%

TOTAL	**100 %**

"A" - 90%
"B" - 80%
"C" - 70%
"D" - 60%
"F" - Below 60%

There will be <u>no</u> exemptions from the college final.

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Required Instructional Materials:
Sullivan/Sullivan, Precalculus Concepts through Functions – A Right Triangle Approach to Trigonometry, 3rd Edition, 2015 Publisher: Pearson, Boston, MA ISBN Number: 13: 978-0321645081

A graphing calculator is required for this class and access to My Math Lab.

Minimum Technology Requirements: Access to My Math Lab by computer or phone

Required Computer Literacy Skills: Basic Computer Skills

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 and Remind messaging 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: No late work will be accepted without prior approval by the instructor. Students are always expected to be respectful toward classmates and instructor. Review Student Conduct in the Student Handbook.

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):

Weeks Topics	Assignments	Due Dates
Week 1: 1/16/23 – 1/20/23 Function	1.1 Functions 1.2 The Graph of a Function 1.3 Properties of Functions	**Problems as assigned in class** <u>Due Sunday</u>
Week 2: 1/23/23 – 1/27/23 Functions	1.4 Library of Functions 1.5 Graphing Techniques and Transformations 1.6 Mathematical Models; Building Functions 1.7 Building Mathematical Models Using Variation	**Problems as assigned in class** **Ch 1 Test Review** <u>Due Sunday</u>
Week 3:1/30/23 – 2/3/23 Linear Functions	**Ch. 1 Functions Test** 2.1 Properties of Linear Functions and Linear Models 2.2 Building Linear Models from Data	**Problems as assigned in class** <u>Due Sunday</u>
Week 4: 2/6/23 – 2/10/23 Quadratic Functions	2.3 Quadratic Functions and Their Zeros 2.4 Properties of Quadratic Functions 2.5 Inequalities Involving Quadratic Functions 2.6 Building Quadratic Models from Verbal Descriptions and Data	**Problems as assigned in class** <u>Due Sunday</u>
Week 5: 2/13/23 – 2/17/23 Quadratic Functions	2.7 Complex Zeros of a Quadratic Function 2.8 Equations and Inequalities Involving the Absolute Value Function	**Problems as assigned in class** **Ch. 2 Test Review** <u>Due Sunday</u>
Week 6: 2/20/23 – 2/24/23 Polynomial and Rational Functions	**Ch. 2 Quadratics Test** 3.1 Polynomial Functions 3.2 Properties of Rational Functions	**Problems as assigned in class** <u>Due Sunday</u>
Week 7: 2/27/23 – 3/3/23 Polynomial/Rational Functions	3.3 The Graphs of a Rational Function 3.4? 3.5 The Real Zeros of a Function 3.6 Complex Zeros; Fundamental Theorem of Algebra	**Problems as assigned in class Ch. 3 Test Review** <u>Due Sunday</u>
Week 8: 3/6/23– 3/10/23 Exponential/Logarithmic Functions	**Ch. 3 Poly/Rational TEST** 4.1 Composite Functions 4.2 One to One Functions, Inverse Functions	**Problems as assigned in class** <u>Due Sunday</u>
3/13/23 – 3/17/23	Spring Break	**Enjoy Time Your Off**
Week 9: 3/20/23 –3/24/23 Exponential/Logarithmic Functions	4.3 Exponential Functions 4.4 Logarithmic Functions	**Problems as assigned in class** <u>Due Sunday</u>
Week 10: 3/27/23-3/31/23 Exponential/Logarithmic	4.5 Properties of Logarithmic Functions 4.6 Logarithmic and Exponential Equations	**Problems as assigned in class** **Ch. 4 Test Review** <u>Due</u>

Functions		<u>Sunday</u>
Week 11: 4/3/23-4/7/23 **Polar Coordinates**	**Ch. 4 Expo/Log TEST** 8.1 8.2	**Problems as assigned in class** <u>Due Sunday</u>
Week 12: **4/10/23-4/14/23** **Vectors**	8.4 Vectors **Ch. 8 Polar Test**	**Problems as assigned in class** **Ch. 8 Test Review** <u>Due 4/12/23</u>
Week 13: **4/17/23-4/21/23** **Analytic Geometry**	9.1 9.2 Parabolas	**Problems as assigned in class** <u>Due Sunday</u>
Week 14: **4/24/23-4/28/23** **Analytic Geometry**	9.3 Ellipse 9.4 Hyperbolas 9.5 Rotation of Axes 9.6? 9.7 Plane Curves and Parametric Equation	**Problems as assigned in class** **Ch. 9 Test Review** <u>Due Sunday</u>
Week 15: 5/12/23-5/5/23 **Semester Test Review**	**Ch. 9 Analytic Geo Test** *Final Exam Review*	**Semester Test Review**
Week 16: 5/8/23-5/12/23 **Final Exam Semester** **TEST 2 Days**	**Comprehensive Final**	