

Concurrent Enrollment Course Outline

High School Name: McGraw High School

Instructor: Alexandra Perry

Instructor e-mail and/or phone #: aperry@mcgrawschools.org, 836-3601 ext 4789

TC3 Course #: MATH 138

TC3 Course Title: Precalculus

Credit Hours: 4

Student Audience – Grade Level(s): Juniors and Seniors

Semester(s) Offered: *Fall*

Course Description: Provides the algebraic foundation, from a function standpoint, for a standard calculus course. Topics include; theory of functions and radicals, right triangle trigonometry, analytic trigonometry, law of sines, law of cosines, trigonometry with applications, vectors, polar coordinates, binomial theorem and conic sections. MATH 138 fulfills the SUNY General Education Mathematics requirement. Below are the chapters and topics we will be covering during this course.

Fundamental Concepts of Algebra: Real numbers and algebraic expressions, exponents and scientific notation, radicals and rational exponents, polynomials, factoring polynomials, rational expressions, linear equations, quadratic equations, and linear inequalities

Graphs, Functions, and Models: Lines and slope, distance and midpoint formulas, basics of functions, graphs of functions, transformations of functions, composite functions, inverse functions

Polynomial and Rational Functions: Complex numbers, quadratic functions, polynomial functions and their graphs, dividing polynomials: remainder and factor theorem, zeros of polynomial functions, rational functions, polynomial and rational inequalities

Exponential and Logarithmic Functions: Exponential functions, logarithmic functions, properties of logarithms, exponential and logarithmic equations, modeling with exponential functions

Trigonometric Functions: Angles and their measure, trigonometric functions, right triangle trigonometry, trigonometric functions of any angle, graphs of sine and cosine functions, graphs of other trig functions, inverse trig functions

Analytic Trigonometry: Verifying trigonometric identities, sum and difference formulas, double-angle and half angle formulas, trigonometric equations

Additional Topics in Trigonometry: The law of sines, the law of cosines, polar coordinates, graphs of polar equations, vectors, the dot product

Systems of Equations and Inequalities: Systems of equations in two and three variables, partial fractions

Matrices and Determinants: Matrix solutions to linear systems, matrix operations and their applications, multiplicative inverses of matrices and matrix equations, determinants and Cramer's rule

Conic Sections and Analytic Geometry: The ellipse, the hyperbola, the parabola

Sequences, Induction, and Probability: Sequences and summation notation, arithmetic sequences, geometric sequences, the binomial theorem, counting principles, permutations and combinations, probability

Introduction to Calculus: Finding limits using tables and graphs, finding limits using properties of limits, one-sided limits; continuous functions, introduction to derivatives

Course Prerequisites: C or better in MATH 120

Class Modalities/Learning Strategies:

Teaching methods will include lecture, discussion, and group work on various problems. Students will also be engaging with the material independently with instructor assistance as needed.

Course Goals and Objectives:

1. To approach problem solving in the context of functions
2. To master concepts relating to functions and master concepts relating to trigonometry (right triangle and analytic)
3. To develop and organize a formal approach to problem solving
4. To master graphing conic sections and beginning vectors

Texts and Materials: PreCalculus Second Edition. Blitzer. Prentice Hall. 2004

Evaluation/Grading System: Grading Scale:

93-100 A	90-92 A-	
87-89 B+	83-86 B	80-82 B-
77-79 C+	73-76 C	70-72 C-
67-69 D+	63-66 D	60-62 D-
	0-59 F	

Final Grade Determined by (include percentages): Final Average is the average of the 4 Marking Periods and the Final Exam. Each marking period consists of approximately **50% tests, 25% quizzes, and 25% homework.**

Students are given an assignment from the textbook or a worksheet to practice each night. This will be graded for accuracy and shown work. Late homework is strongly discouraged, though it will be accepted up to three school days following the school day it is due for half credit. There will be approximately one test and one quiz for each unit.

Statement of Academic Integrity: Every student at McGraw High School is expected to act in an academically honest fashion in all aspects of his or her academic work: in writing papers and reports, in taking examinations, in performing laboratory experiments and reporting the results, in clinical and cooperative learning experiences, and in attending to paperwork such as registration forms. Any written work submitted by a student must be his or her own. If the student uses the words or ideas of someone else, he or she must cite the source by such means as a footnote. Our guiding principle is that any honest evaluation of a student's performance must be based on that student's work. Any action taken by a student that would result in misrepresentation of someone else's work or actions as the student's own — such as cheating on a test, submitting for credit a paper written by another person, or forging an advisor's signature — is intellectually dishonest and deserving of censure.

Tompkins Cortland Community College's Statement of Academic Integrity

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Make-Up Policy/Late Work: If the student has missed a day due to sickness or other valid reasons, he/she has the same number of school days to complete missed work as the number of days he/she were absent. Late homework is strongly discouraged, but will be accepted up to three school days following the day it is due for half credit.

Attendance Policy: To maintain good grades, regular attendance in class is necessary. Absence from class is considered a serious matter and absence never excuses a student from class work. Unless otherwise provided for by the instructor, all students are expected to promptly attend, on time, every class session for which they are registered. If absence is anticipated, it is the student's responsibility to inform the instructor as far in advance as possible. If a student is absent on the day of an exam or deadline, the instructor will decide whether the exam or assignment may be submitted late. In all cases, it is the student's responsibility to find out what happened in class.

Student Responsibilities: Students are expected to take responsibility for their own work and seek help from Mrs. Perry when needed.

Student Expectations:

1. Come to class on time and prepared with materials (calculator, notebook, etc.)
2. Be respectful of him/herself and of others
3. Cellphone and other devices are to be silenced and not used during class unless otherwise instructed
4. Be ready to participate and learn each day with a positive attitude

Additional Assistance: Mrs. Perry is available during 8th period, 9th period, and after school. Please come see her if you need assistance.

Concurrent Enrollment Student Handbook:

Students should review the guidelines provided on CollegeNow's website for information on college expectations, College library services, and transferring credits. Student Resource links appear on the right side of the CollegeNow homepage at www.tompkinscortland.edu/collegenow