Reynolds High School

Pre-Calculus 2023 – 2024
(Math 111Z and Math 112Z)

Building Relationships for Academic Success

Instructor: Andrea Hernandez
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Required Textbook/Materials:
- *Precalculus with Limits** by Ron Larson and Paul Battaglia
- Chromebook – charged, decluttered, and updated
- Spiral notebook
- Graph paper
- Pens, pencils, colored pencils, highlighters
- Ruler (6-inch or 12-inch)
- A scientific or graphing* calculator

*We will go to the library to check out the textbook and you may choose to also check out a graphing calculator for use this year.

Course Description:
This is a full year, one credit honors class at RHS that also offers 5 credits each at MHCC for Math 111Z and for Math 112Z. Please refer to the MHCC Learning Outcomes at the end of this document for a comprehensive list of the required topics to be covered this year. You will be able to sign up for the MHCC credit for the Winter term in November for Math 111Z and for the Spring term in March for Math 112Z on the Mt. Hood website.

This class will pull together all your prior knowledge of algebra and geometry. We will work extensively with functions during the first semester and trigonometry the second semester. All work will be from the textbook with supplemental materials, notes, and videos provided in Schoology.

Expected Prior Knowledge and Skills:

• Proficiency with linear functions

• Proficiency in polynomial addition and multiplication

• Proficiency in factoring quadratic trinomials

• Proficiency in using the quadratic formula

• Proficiency in solving right triangle problems involving trigonometry

• Proficiency in solving linear and quadratic equations and inequalities

• Proficiency in algebraic manipulation of linear equations and expressions

• Proficiency in solving systems of equations in two variables

• Familiarity with piecewise-defined functions

• Familiarity with exponential and logarithmic functions and rules for exponents

• Familiarity with radicals (e.g., square roots, cube roots)

• Familiarity with complex numbers

New Bell Schedule – Block Periods!
Things are changing this year at RHS! We are on a block schedule, which means we will meet every *other* day for 90 minutes instead of every day for 50 minutes like last year. Attendance will be more important because missing one day of class has double the impact as it did last year.

It will be important that you know what day it is (A-day or B-day) so that you have the appropriate materials with you. Please use your student planner, which you will get on Monday, September 11, to help you stay organized.

Graded Item Weights:
> 80% Summative (Tests and Work Samples)
> 20% Formative (Classwork, Homework, Participation, Quizzes)

Graded Items and their Absent/Late/Retake Policies:
Participation is a formative item and will be a record of the behaviors I observe in class. Positive participation includes behaviors such as following directions, taking notes, working well alone and with the group. Negative participation includes behaviors such as isolating yourself (head down, phone out, headphones/earbuds in), mistreating supplies, distracting yourself or others around you. A participation score will be put in the gradebook and amount to about 10 points per month.

Classwork is a formative item and will include warm-ups, exit tickets, and any work expected to be completed and turned in during class. If you are absent, please work with me to get what you missed.

Homework is a formative item and will be assigned regularly. Assignments are due at the beginning of the next class unless otherwise stated. Every effort should be made to turn in work on time, but students can still receive full credit for an assignment if it is turned in the same week it was due. It can continue to be turned in for late credit until the day of the test, however, no more than two assignments will be accepted on the day of the test. If turning in work late because of an absence, please write "absent" on the top to avoid it being marked late.

Quizzes are formative items and will be given periodically to check for understanding. These should be completed in class in the time allowed. They should be made up as soon as possible if missed because of an absence and must be done before the exam over the same material. Quizzes cannot be retaken to improve a score.

Exams and *Work Samples* are summative items and are given in class. They must be completed and turned in before leaving class. If you are absent for an exam or work sample, please arrange with me a time to take it upon your return to class (after school works best). You can retake each exam once to improve your score up to 90%. Students who sign up for MHCC credit cannot retake any exams. Students who want the honors designation for the semester grade can retake one exam each semester.

Sometimes students ask for an extension for work or to postpone a test because of various reasons. I don't automatically allow or deny these requests but consider each request on its merits. However, this practice will disqualify you from getting the honors designation for the semester grade and you will not be eligible to sign up for the MHCC credit.

There will be a comprehensive final exam each semester.

Letter Grade Description & Percentage Breakdown

Grade Percentage	Letter Grade	Description (Honors designation (H) carries more stringent requirements regarding retakes and adhering to stated deadlines.)
100% - 90%	A/AH	The student fully understands the content and the course objectives have been mastered.
89% - 80%	B/BH	The student understands the content and course objectives at an above average level.
79% - 70%	C/CH	The student understands the course content and course objectives at an average level.
69% - 60%	D	The student understands the course content at a below average level and a minimum of course objectives are met.
59% - 0%	F	The student has not met a sufficient number of course objectives to pass at a minimum level and receives no credit.

Course Schedule/Outline of Units:

September – October **Semester 1 Unit 1 (CH 1)**	**Title**: Functions and Their Graphs **Topics**: graphs, parent functions, transformations, combinations, composite functions, inverse functions, mathematical modeling and variation
October – November **Semester 1 Unit 2 (CH 2)**	**Title**: Polynomial and Rational Functions **Topics**: quadratic functions and models, polynomial functions of higher degrees, zeros of functions, complex numbers, rational functions, nonlinear inequalities
December **Semester 1 Unit 3 (CH 3)**	**Title**: Exponential and Logarithmic Functions **Topics**: exponential functions and graphs, logarithmic functions and graphs, exponential and logarithmic equations, exponential and logarithmic models
January **Semester 1 Unit 4 (CH 7 – 8)**	**Title**: Systems of Equations and Inequalities **Topics**: linear and nonlinear systems of equations and inequalities, two-variable and multi-variable systems, matrices and determinants, linear programming
February – March **Semester 2 Unit 1 (CH 4)**	**Title**: Trigonometry **Topics**: radians and degrees, Unit Circle, right triangle trig, graphs of trig functions, inverse trig functions, applications and models
March – April **Semester 2 Unit 2 (CH 5)**	**Title**: Analytic Trigonometry **Topics**: fundamental trig identities, verifying trig identities, solving trig equations, sum and difference formulas, multiple-angle and product-to-sum formulas
April – May **Semester 2 Unit 3 (CH 6)**	**Title**: Additional Topics in Trigonometry **Topics**: law of sines, law of cosines, vectors, dot products
May – June **Semester 2 Unit 4 (CH 10)**	**Title**: Topics in Analytic Geometry **Topics**: lines, conics (parabolas, ellipses, hyperbolas) parametric equations, polar coordinates

Class Expectations:

Letter	Stands for	What does this look like in our classroom?
P	Prepared & Punctual	Be in your seat when the bell rings. Have your supplies out and ready to use. Have your assignment out and ready to correct.
O	Organized	Have a spiral notebook for classwork and notes. Have a binder or 2-pocket folder for class papers. Have your computer files named and saved in folders.
W	Writers	Write assignments and test dates in your planner. Write the Warm-Ups, notes, and Exit Tickets in your spiral notebook. Learn and use mathematical notation in your assignments.
E	Engaged	Do the activities assigned. Work well alone and with your group. Stay in class unless it is an emergency. Use class time to be a mathematician.
R	Respectful	Sit in your assigned seat. Get permission to touch or use other's property. Treat classroom supplies carefully. Phones, headphones/earbuds, and food are put away.

Other:
- In addition to my expectations, please refer to pages 23 – 24 in the student planner for the schoolwide POWER expectations and respect matrix.
- Students will be expected to check Schoology (reynolds.schoology.com) for class information. *The Week Ahead* document and a *Daily Agenda* will be found here.
- Grades will be posted in StudentVue. See page 5 in the student planner for access information.
- Parents can get a ParentVue account to check on grades.
- Computer and other account login information can be found on page 8 in the student planner.

By signing below, you are acknowleging that you have received a copy of the syllabus. If you have any questions or concerns, write them below. Please return this to Mrs. Hernandez in room 705.

Student name (printed)＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿ Period＿＿＿＿＿＿＿

Student signature＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿

Parent signature＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿ Date＿＿＿＿＿＿＿

Math 111Z Student Learning Outcomes for MHCC:

<u>Statewide Outcome 1</u>: Explore the concept of a function numerically, symbolically, verbally, and graphically and identify properties of functions both with and without technology.

<u>Statewide Outcome 2</u>: Analyze polynomial, rational, exponential, and logarithmic functions, as well as piecewise-defined functions, in both algebraic and graphical contexts, and solve equations involving these function types.

<u>Statewide Outcome 3</u>: Demonstrate algebraic and graphical competence in the use and application of functions including notation, evaluation, domain/range, algebraic operations and composition, inverses, transformations, symmetry, rate of change, extrema, intercepts, asymptotes, and other behavior.

<u>Statewide Outcome 4</u>: Use variables and functions to represent unknown quantities, create models, find solutions, and communicate an interpretation of the results.

<u>Statewide Outcome 5</u>: Determine the reasonableness and implications of mathematical methods, solutions, and approximations in context.

Math 112Z Student Learning Outcomes for MHCC:

<u>Statewide Outcome 1</u>: Translate among various systems of measure for angles including radians, degrees, and revolutions.

<u>Statewide Outcome 2</u>: Represent, manipulate, and evaluate trigonometric expressions in terms of sides of a right triangle and in terms of the coordinates of a unit circle.

<u>Statewide Outcome 3</u>: Graph, transform, and analyze trigonometric functions using amplitude, shifts, symmetry, and periodicity.

<u>Statewide Outcome 4</u>: Manipulate trigonometric expressions and prove trigonometric identities.

<u>Statewide Outcome 5</u>: Solve trigonometric equations using inverses, periodicity, and identities.

<u>Statewide Outcome 6</u>: Define, represent, and operate with vectors both geometrically and algebraically.

<u>Statewide Outcome 7</u>: Apply the law of sines and law of cosines to determine lengths and angles.

<u>Statewide Outcome 8</u>: Use variables, trogonometric functions, and vectors to represent quantities, create models, find solutions, and communicate an interpretation of the results.

<u>Statewide Outcome 9</u>: Determine the reasonableness and implications of mathematical methods, solutions, and approximations in context.

Mount Hood Community College Dual Credit Statement

When earning college credits in high school, it is important that students choose credits with a purpose as high school credits can affect future financial aid and Oregon Promise eligibility including the amount of funding available. Beyond one or two classes, the added value of college credit is determined by a student's future career and academic goals. The credits only add up when they fit within individual career and education plans. For this reason, it is important that students:

- Actively research which careers are of the most interest to them and the required degree certificate needed from a college or university to enter a career field.
- Seek out resources from high school counselors or career and college advisors. Teachers, counselors, and advisors have materials to help with planning.
- Research the colleges they are interested in attending and ask the college for guidance.