Columbia High School

Course Syllabus

2020 - 2021

**I.** **Course:** College Algebra & Trigonometry

**II.** **Department:** Mathematics

**III. Instructor:** Mr. Doug Smith

**IV. Course Description:**

Students enrolled in College Algebra and Trigonometry should be prepared for a college-like atmosphere with high expectations and rigor. Students completing the program will be provided with a comprehensive background of theory, skills, and applications needed to build a strong foundation for more advanced mathematics courses, possibly earning college credit through Northwest Nazarene University’s Concurrent Credit Program. A three-ring notebook supplied with graph paper is required for class notes, assignments, and handouts. A scientific calculator is also required. For those who are planning on taking AP Statistics or AP Calculus you may want to invest in a graphing calculator.

(I recommend Texas Instruments TI-84 or above) You need to bring your personal learning device and a set of head phones to class every day, as part of our day will be dedicated to personal learning time.

To be successful, students must understand the following: 1) You cannot learn much mathematics by simply memorizing words and procedures, or by watching other people do it. You must be an active participant, and understand the presented concepts. 2) You are expected to read and use your text book as a learning resource not just a place to get your assignments. 3) You are expected to do homework every day, so set aside time for it. Do not wait until the last minute if you do not understand something. 4) If you cannot answer a question, do not give up!!! Ask the teacher, parent, or classmate, but never quit!!!

**V.** **Course Outline:**

1. **Fundamentals of Pre-Calculus**

* Exponents and Radicals
* Polynomials and Factoring
* Rational Expressions
* Solving Equations

**B.** **Functions and Their Graphs**

* What is a Function
* Analyzing Graphs of Functions
* A Library of Parent Functions
* Transformation of Functions
* Combining Functions
* One-to-One Functions and Their Inverses
* Mathematical Modeling and Variation

**C. Polynomials and Rational Functions**

* Quadratic Functions and Models
* Polynomial Functions of Higher Degree
* Polynomial and Synthetic Division
* Complex Numbers
* Zeros of Polynomial Functions
* Rational Functions
* Nonlinear Inequalities

**D. Exponential Functions and Logarithmic Functions**

* Exponential Functions and Their Graphs
* Logarithmic Functions and Their Graphs
* Properties of Logarithms
* Exponential and Logarithmic Equations
* Modeling with Exponential and Logarithmic Functions

**E. Systems of Equations and Inequalities**

* Linear and Nonlinear Systems of Equations
* Multivariable Linear Systems
* Systems of Inequalities

**F. Trigonometry**

* Radian and Degree Measure
* Trigonometric Functions: The Unit Circle
* Right Triangle Trigonometry
* Trigonometric Functions of any Angle
* Trigonometric Graphs and Modeling
* Inverse Trigonometric Functions
* Applications and Modeling

**G. Analytic Trigonometry**

* Using the Fundamental Identities
* Verifying Trigonometric Identities
* Solving Trigonometric Equations
* Sum and Difference Formulas
* Multiple-Angle and Product-to-Sum Formulas

**H. Additional Topics in Trigonometry**

* Law of Sines
* Law of Cosines
* The Complex Plane
* Trigonometric Form of a Complex Number

**VI.** **Homework:**

Homework plays an important role in the understanding and learning of mathematics; therefore, **daily** assignments will be given. This year we will be using the Summit Learning platform. Assignments will be posted into Summit. Appropriate work and communication must be shown. A scientific calculator, preferably with graphing capabilities is highly recommended for the class, but not required. A spiral notebook for graded class activities and warm-ups is also needed. The average student can expect to spend at least 10-15 hours per week, outside of class, studying materials and doing weekly homework and quizzes. If you struggle with a concept you may need to increase the amount of time spent on the coursework

**VII. Grading:**

Final grades are based upon on the mastery of Essential Standards and learning targets or competencies for each unit of study.  Assessments are designed to measure the level of mastery of the learning targets.  Assessments will fall into one of three categories

1)**Power Focus Areas (21%):**These Formative Assessments are designed to inform the students of their current level of mastery focusing on one or two standards.

2)**Unit Assessments and Portfolio Problems (70%)**:  These Summative Assessments and application problems will be a cumulative assessment of the standards within each unit.

3)  **Additional Focus Areas (9%)**:  Formative Assessments based on non-essential standards

All standards will be graded on the 0 - 4 point scale below**:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 4 | 3 | 2 | 1 | 0 |
| The student demonstrates exceptional skills and knowledge above standard. | The student demonstrates proficiency with the standard, only making minor mistakes. | The student shows emerging progress toward meeting standard, but overall lack of understanding. | The student is making minimal progress toward meeting standard. | No evidence of learning. |

Students will have the opportunity to prove understanding of the learning targets on multiple assessments, and the student’s academic grade will change as the learning progresses. Individualized remediation will be used to ensure that each student achieves mastery of each learning target.

If a student is not pleased with their performance on an exam, the student will be given the opportunity to reassess. In order to reassess the student must have no more than one missing assignment in the current unit of study, complete the review assignment, and follow the test correction policy for the given test.\*

Each semester you will have a semester exam that will account for approximately 20% of your overall grade. The semester exam cannot be retaken.

\*Northwest Nazarene University’s Math department does not allow for the retaking of tests, therefore your high school grade and your college grade may differ.

**VIII.** **Classroom Expectations:**

1. **It is the expectation that cell phones are put away during class time.**

2. Personal learning devices will be used for their intended purposes. No games, messaging, etc.

3. Follow Directions (The First Time!!!)

4. When instructor or someone else is talking, students will be listening.

5. No Food or Drink except for a water bottle.

6. Students are to be in their seats when the bell rings or they will be counted as tardy.

Tardiness will be handled according to school policy.

7.Profanity, vulgarity, or insulting language will not be tolerated

8. When given time in class to work, students will be working not socializing.

9. Come to class with all supplies.

10. Cheating and using apps such as PhotoMath and Chegg will result in an automatic zero

11. In summary Be Prepared, Be Polite, Be On Time.

**Consequences:**

***Phase One*** - First Offense - Warning

***Phase Two*** - Second Offense - Time after class or school. Student/Teacher Conference

***Phase Three*** - Third Offense - Time after school or lunch detention, Student/Teacher Conference, and Parental contact.

***Phase Four*** - Administrative Intervention

**X. Extra Help:**

If you need extra help feel free to see me any time before or after school, during Wednesday’s SDL time, or make arrangements to see me during lunch. E-mail address: [dsmith@nsd131.org](mailto:dsmith@nsd131.org)

\*\*The instructor reserves the right to make any necessary changes.

**XI. Online Expectations**

**Zoom Meetings**

* This is our virtual classroom. Appropriate classroom behavior and attendance is expected
* Log into your meeting from a distraction free, quiet environment.
* Please keep your audio on mute until you want to speak.
* Make sure your video is on so we can see your happy face.
* If you would like to speak or answer a question, use the “Raise Hand feature. Then unmute yourself after your are called on
* If you would like to use the chat box, remember that it is public, and a record of the chat is kept and archived
* Have paper and pencil handy to take notes

**Office Hours:** 2:45 – 3:30 – This will be the best time to contact me with questions. I will answer as soon as possible. Do not expect replies during off-school times.