Course Objective:

A firm foundation in algebra and trigonometry is necessary for success in college level mathematics courses. This course is an extension of Algebra 2 and is designed for college bound students who will not be choosing a major emphasizing math or science.

This is a Dual Credit class, which means that students passing this class will receive credit both for Incarnate Word Academy and for UMSL. College credits earned through the ACP are accepted at all of Missouri's public colleges and universities and many other institutions across the country. For UMSL purposes, it is a three-hour class listed in the class catalogue as MATH 1030 - College Algebra. Topics include linear, quadratic, and rational equations and inequalities, the algebra of functions (including polynomial, rational, exponential, and logarithmic functions), the graphs of some of these functions, and systems of equations. Additional topics may include trigonometry and analytical geometry.

UMSL Course Description

Math 1030:  Topics in algebra and probability, polynomial functions, the binomial theorem, logarithms, exponentials, and solutions to systems of equations.

This course is being offered for Advanced Credit through the University of Missouri-Saint Louis.  Enrollment is done on-line and you may register at:  [www.umsl.edu/acp](http://www.umsl.edu/acp). Please visit this site or call [(314) 516-7005](tel:(314)%20516-7005)for more information.

This course is available to students who meet the criteria for dual credit at the University of Missouri St. Louis.  When you successfully complete this course with a “C” or above you will have earned three college credit hours if you have enrolled with the University of Missouri St. Louis.  You can enroll for the course online at [www.umsl.edu/acp](http://www.umsl.edu/acp).       
  
Optional College Credit for this course:

 For a fee, five (5) hours of college credit is available through the University of Missouri - St. Louis (you should check with receiving schools as to whether they accept this transfer credit).   It is always up to the receiving institution as to whether credit will be accepted for transfer credit or not.  Registration for UMSL credit for this course usually takes place online in January and is subject to very strict deadlines. These deadlines are set by the university and required by the Coordinating Board for Higher Education (CBHE). Credit must be paid for during the semester the student is enrolled in the class. Retroactive credit can’t be granted. Please visit the UMSL Advanced Credit website is [www.umsl.edu/acp](http://www.umsl.edu/acp) for current prices and deadlines. 

Materials:

Algebra and Trigonometry by Blitzer, 4 th edition, pencil, binder, and scratch paper.

Calculator Policy:

No calculators are allowed on quizzes or tests. This is an UMSL policy.

“The reason for this is that we have found that the use of such devices tends to exacerbate weaknesses, particularly regarding basic skills. For that reason, you might consider not using one on your homework unless it’s an absolute must.” (UMSL Syllabus)

Learning Outcomes

* How to find zeros and graphs of polynomial functions.
* Understand solving linear, quadratic, absolute value, radical, and other types of equations.
* Learn polynomial division, remainder and factor theorem, and zeros of theorems.
* How to use of matrices and determinants to solve linear systems of equations
* Applying the concept of logarithms and exponential functions
* Learn sequences and summation notation. Learn to recognize and do calculations involving arithmetic and geometric series.
* How to use the binomial theorem and Pascal’s triangle to expand binomials in positive integer powers.

Formative assessment:

Formative assessments consist primarily of practice problems and quizzes. Practice Problems are given for each section covered. Practice problems are found on mathxlforschool.com and will be graded for accuracy. Late work will follow the IWA Policy for NLPS. Quizzes are worth double your practice problems. Quizzes are given in class and will be your primary source of review for your tests. Quizzes will reflect the more challenging questions from your practice problems. We are looking for a higher understanding then what is presented in class. All practice problems Must be completed before you take your quiz. All practice problems and quizzes must be completed before you may take your test. Supplemental material in the forms of open labs may be added as necessary throughout the semester.

Summative Assessment:

Summative Assessments will be given in the form of tests. All tests will be given in the testing center. Before you can take a test you will need to have completed all formative assignments and a practice test given in class. Tests will reflect the quizzes and these quizzes should be your main source of study. If you fail a summative assessment you will be required to complete the IWA redo process.

Final 15%:

The final will be taken during finals week and consist of equal parts of all summative assessments. You are required to complete all summative assessments before you can take the Final.

Parental Contact

If your grade falls to a 70% or below, your parents will be contacted via email. If your grade stays at a 70% or below, then your parents will be contacted via phone.

Grading Scale

|  |  |
| --- | --- |
| A+ | 97 - 100 |
| A | 93 - 96 |
| A- | 90 - 92 |
| B+ | 87 - 89 |
| B | 83 - 86 |
| B- | 80 – 82 |
| C+ | 77 – 79 |
| C | 73 – 76 |
| C- | 70 – 72 |
| D+ | 67 - 69 |
| D | 65 – 66 |
| F | 64 and below |

LAPS

All students will receive a LAP at the beginning of each chapter. I will have these printed for you, it is not necessary for you to print your own. You only need to print a new one if you have misplaced yours.

Field Trips for Other Classes

I will not approve a student to go on a field trip for another class and missing this class unless her grade is a 70% or higher.

Contact Information:

If you need me you can email me at [kalbertson@iwacademy.org](mailto:kalbertson@iwacademy.org), come to an open lab time, or call me at [(314) 725-5850](javascript:void(0)) ext #1146.

Tentative Schedule:

|  |  |
| --- | --- |
| Chapter/Section | Topic |
| **Summer Packet** | **Summer Math Packet Test** |
| Section 11.1 | Sequences and Summation Notation |
| Section 11.2 | Arithmetic Sequences |
| Section 11.3 | Geometric Sequences and Series |
|  | Quiz 1 |
| Section 11.5 | The Binomial Theorem |
| Section 11.7 | Probability |
|  | Quiz 2 |
|  | **Review/Test 1** |
| Section 5.1 | Angles and Radian Measure |
| Section 5.2 | Right Triangle Trigonometry |
|  | Quiz 3 |
| Section 5.3 | Trigonometric Functions of Any Angle |
| Section 5.4 | Trigonometric Function of Real Numbers; Periodic Functions |
| Section 5.5 | Graphs of Sine and Cosine Functions |
|  | Quiz 4 |
|  | **Review/Test 2** |
| Section 1.1 | Graphs and Graphing Utilities |
| Section 1.2 | Linear Equations and Rational Equations |
| Section 1.3 | Models and Applications |
|  | Quiz 5 |
| Section 1.4 | Complex Numbers |
| Section 1.5 | Quadratic Equations |
| Section 1.6 | Other Types of Equations |
| Section 1.7 | Linear Inequalities and Absolute Value Inequalities |
|  | Quiz 6 |
|  | **Review/Test 3** |
| Section 2.1 | Basics of Functions and Their Graphs |
| Section 2.2 | More on Functions and Their Graphs |
|  | Quiz 7 |
| Section 2.3 | Linear Functions and Slope |
| Section 2.4 | More on Slope |
|  | Quiz 8 |
| Section 2.5 | Transformation of Functions |
| Section 2.6 | Combinations of Functions: Composite Functions |
| Section 2.8 | Distance and Midpoint Formulas: Circles |
|  | Quiz 9 |
|  | **Review/Test 4** |
| **Semester 1 Final** | |
| Section 3.1 | Quadratic Functions |
| Section 3.2 | Polynomial Functions and Their Graphs |
|  | Quiz 1 |
| Section 3.3 | Dividing Polynomials; Remainder and Factor Theorems |
| Section 3.4 | Zeros of Polynomial Functions |
|  | Quiz 2 |
| Section 3.5 | Rational Functions and Their graphs |
| Section 3.6 | Polynomial and Rational Inequalities |
|  | Quiz 3 |
|  | **Review/Test 1** |
| Section 4.1 | Exponential Functions |
| Section 4.2 | Logarithmic Functions |
|  | Quiz 4 |
| Section 4.3 | Properties of Logarithms |
| Section 4.4 | Exponential and Logarithmic Equations |
|  | Quiz 5 |
|  | **Review/Test 2** |
| Section 8.1 | Systems of Linear Equations in Two Variables |
|  | Quiz 6 |
| Section 8.2 | Systems of Linear Equations in Three Variables |
| Section 8.4 | Systems of Nonlinear Equations in Two Variables |
|  | Quiz 7 |
| Section 9.1 | Matrix Solutions to Linear Systems |
| Section 9.2 | Inconsistent and Dependent Systems and Their Applications |
| Section 9.5 | Determinants and Cramer’s Rule |
|  | Quiz 8 |
|  | **Review/Test 3** |
| Section 10.1 | The Ellipse |
| Section 10.2 | The Hyperbola |
|  | Quiz 9 |
| Section 10.3 | The Parabola |
|  | Quiz 10 |
|  | **Review/Test 4** |
|  |  |
| **Semester 2 Final** | |