

Department Goals

The Bishop DuBourg High School's Mathematics Department strives to empower our students to:

1. Show appreciation for mathematics.
2. Exhibit confidence in their mathematical ability.
3. Demonstrate individual responsibility for learning life-long math skills.
4. Apply various mathematical algorithms (effective methods/procedures) in problem solving, number theory, operations, measurement, and discrete mathematics.
5. Recognize the cumulative nature of mathematics as it evolves in algebra, geometry, trigonometry, and calculus.
6. Identify and model mathematical connections, functions, and patterns to other subject areas and to real-world applications.
7. Design mathematical solutions using inductive and deductive reasoning, statistics, data analysis, logic, and critical thinking skills.
8. Communicate using correct mathematics vocabulary in oral and written form.
9. Use technology to facilitate and enhance mathematics learning and computation.

Department Course Goals

Course Code ALG11

Course Name Enriched Algebra 1

Goals

1. Students will become familiar with and use algebraic terminology.
2. Students will apply basic algebraic concepts.
3. Students will exhibit a working knowledge of algebraic skills and methods.
4. Students will apply algebraic methods and formulas in solving problems.
5. Students will solve word problems, challenge problems, and critical thinking problems.
6. Students will exhibit more confidence in their mathematical abilities as a result of taking an enriched algebra 1 class.
7. Students will show preparedness for future Algebra 2, Algebra 3, and Calculus courses.
8. Students will demonstrate knowledge of the graphing calculator (TI 83/TI 84) by correcting homework and solving more sophisticated algebraic problems.

Content (Knowledge, Skills & Values)

1. Real numbers and their properties
2. Rational numbers and their applications
3. Solving simple and multi-step equations
4. Solving and graphing inequalities
5. Set up and solve word problems, challenge problems, and critical thinking problems
6. Polynomials
7. Factoring
8. Solve quadratic equations using factoring and the quadratic formula
9. Graphing linear equations
10. Complete a graphing project
11. Solving systems of equations

Resources, Activities & Assessments

1. Algebra 1 by Smith, Charles, Dossey, and Bittinger
Prentice Hall, © 2001
2. Calculators and graphing calculators
3. Worksheets
4. Discoveryschool.com (make puzzles)
5. PHschool.com (practice quizzes and tests)
6. Eraserdog.com (graphs)
7. Edhelper.com (writing equations of lines)
8. Assessment tools will include: tests, quizzes, class work, homework, and project.

Department Course Goals

Course Code ALG13 ALG15

Course Name ALGEBRA 1 A and B

Goals

1. Students will become familiar with and use algebraic terminology.
2. Students will apply basic algebraic concepts.
3. Students will exhibit a working knowledge of basic algebraic skills and methods.
4. Students will apply algebraic methods and formulas in solving problems.
5. Students will exhibit more confidence in their mathematical abilities as they are introduced to Algebra 2 and Geometry.
6. Students will show preparedness for future Algebra 2 and Geometry courses.
7. Students will demonstrate a basic knowledge of the calculators to use in solving algebraic problems.

Content (Knowledge, Skills & Values)

1. Real numbers and their properties
2. Rational numbers and their applications
3. Solving simple and multi-step equations
4. Solving inequalities
5. Set up and solve word problems
6. Polynomials
7. Factoring
8. Graphing linear equations
9. Solving systems of equations

Resources, Activities & Assessments

1. Algebra 1 by Smith, Charles, Dossey, and Bittinger
Prentice Hall, © 2001
2. Scientific calculators
3. Worksheets

4. Discoveryschool.com (make puzzles)
5. PHschool.com (practice quizzes and tests)
6. Assessment tools will include: tests, quizzes, class work, homework, projects

Department Course Goals

Course Code ALG21

Course Name ENRICHED ALGEBRA 2

Goals

1. Students will demonstrate an increased algebraic vocabulary in Algebra II.
2. Students in Algebra II will demonstrate a better understanding of algebraic concepts as they advance in Algebra II.
3. Students will exhibit a working knowledge of algebraic skills and methods by working challenge and critical thinking problems in Algebra II.
4. Students will apply algebraic methods and formulas from Algebra II in problem solving situations on a regular basis.
5. Students will show a greater appreciation of mathematics based on their understanding of Algebra II concepts.
6. Students will exhibit more confidence in their mathematical abilities as they find success in Algebra II.
7. Students will exhibit better preparedness for future courses in high school and college as a result of the knowledge and skills gained in Algebra II.

Content (Knowledge, Skills & Values)

1. Real numbers and their properties
2. Equations and inequalities
3. Graphs, slope, and functions
4. Polynomials and factoring
5. Systems of equations
6. Matrices and determinants
7. Rational expressions
8. Irrational and complex numbers
9. Quadratic equations and functions
10. Conic sections
11. Application problems

Resources, Activities & Assessments

1. Algebra II with Trigonometry
Smith, Charles, Dossey, Bittinger
Prentice-Hall, 2001
2. Graphing Calculators
3. Worksheets
4. Assessment tools will include: tests, quizzes, homework assignments, in-class assignments

Mathematics Department Course Goals

Course Code ALG23

Course Name ALGEBRA 2

Goals

1. Students will demonstrate an increased algebraic vocabulary associated with Algebra II.
2. Students will demonstrate a better understanding of algebraic concepts as they advance in Algebra II.
3. Students will exhibit a working knowledge of algebraic skills and methods developed in Algebra II.
4. Students will apply algebraic methods and formulas from Algebra II in problem solving situations.
5. Students will show a greater appreciation of mathematics based on their understanding of Algebra II concepts.
6. Students will exhibit more confidence in their mathematical abilities as they find success in Algebra II.
7. Students will exhibit better preparedness for future courses in high school and college as a result of the knowledge and skills gained in Algebra II.

Content (Knowledge, Skills & Values)

1. Real numbers and their properties
2. Equations and inequalities
3. Graphs, slope, and functions
4. Polynomials and factoring
5. Systems of equations
6. Matrices and determinants
7. Rational expressions
8. Irrational and complex numbers
9. Quadratic equations and functions

Resources, Activities & Assessments

1. Algebra II with Trigonometry
Smith, Charles, Dossey, Bittinger
Prentice-Hall, 2001
2. Graphing calculators
3. Worksheets
4. Assessment tools will include: tests, quizzes, homework assignments, in-class assignments

Department Course Goals

Course Code ALGGT

Course Name ALGEBRA3, GEOMETRY & TRIG

Goals

1. Students will demonstrate an increased knowledge of algebra and its uses as associated with Algebra III.
2. Students will apply the trigonometric and circular functions to solve problems as an alternative to algebraic solutions.
3. Students will devise proofs, calculate areas and perimeters, and develop strategies for solving problems, based on geometric theorems as developed in Algebra III.
4. Students will display an understanding of vector notation.
5. Students will use their knowledge of matrix mathematics in Algebra III for solving equations and will employ graphic calculators to solve problems.
6. Students will implement statistics formula and types of graphs as well as probability on practical applications of Algebra III.

Content (Knowledge, Skills & Values)

1. Trigonometry and circular functions (functions, applications, vectors, radian and degree measure)
2. Geometry (perimeter, area, segments, sectors, proofs)
3. Matrices (matrix arithmetic, solving equations)
4. Statistics & probability (averages, graphs, applications)
5. Solving simultaneous equations in various methods
6. Graphing (linear, conic, inequalities)
7. Word problems

Resources, Activities & Assessments

1. Advanced Mathematics, An Incremental Development, Saxon, Saxon Publishers, Inc.; 2003
2. Graphing calculators
3. Overhead/White board (student and teacher use)
4. Homework
5. Quizzes/worksheets
6. Tests

7. Projects/papers/presentations

8. Group work

Department Course Goals

Course Code ANGEOM

Course Name ANALYTIC GEOMETRY

Goals

1. Students will demonstrate an understanding of the basic concepts of Analytic Geometry.
2. Students will apply algorithms and formulae of Analytic Geometry in problem solving.
3. Students will show a greater appreciation of the connections in mathematics based on their understanding of Analytic Geometry concepts.
4. Students will demonstrate an ability to graph polynomials functions using various Analytic Geometry techniques.
5. Students will exhibit better preparedness for future math courses in high school and college as a result of the knowledge and skills gained in Analytic Geometry.

Content (Knowledge, Skills & Values)

1. Linear relations and functions
2. Systems of equations and inequalities
3. Nature of graphing
4. Polynomial and rational functions
5. Conics

Resources, Activities & Assessments

1. Advanced Mathematical Concepts, Gordon, Yunker, Crosswhite, Vannatta, Glenco Publishing Co., 1994
2. Graphing calculators
3. Overhead/White board (student and teacher use)
4. Homework
5. Quizzes/worksheets
6. Tests
7. Projects/papers
8. Group work

Mathematics Department Course Goals

Course Code **CALC** Course Name **Calculus**

Goals

1. Students will demonstrate an understanding of the basic calculus concepts of limit, derivative, and integral.
2. Students will be able to apply methods and formulas of calculus in solving problems.
3. Students will exhibit preparedness to enter college math courses as a result of the knowledge and skills gained in Calculus.
4. Students will show a greater appreciation of mathematics based on their understanding of Calculus concepts.

Content (Knowledge, Skills & Values)

1. Pre-calculus review
2. Limits and continuity of functions
3. Differentiation and applications of the derivative
4. Integration and applications of the definite integral

Resources, Activities & Assessments

1. Calculus and Analytical Geometry
Thomas, Finney
Addison-Wesley Publishing Co., 1996
2. Graphing calculators
3. Worksheets
4. Assessment tools will include tests, quizzes, and worksheets

Department Course Goals

Course Code FNMTH

Course Name FINITE MATH

Goals

1. Students will demonstrate a basic understanding of the vocabulary used in Finite Math.
2. Students will demonstrate an understanding of the basic concepts of Finite Math.
3. Students will apply algorithms and formulas of Finite Math in problem solving.
4. Students will show a greater appreciation of mathematics based on their understanding of Finite Math concepts.
5. Students will exhibit more confidence in their mathematical abilities as they find success in Finite Math.
6. Students will exhibit better preparedness for future courses in college as a result of the knowledge and skills gained in Finite Math.

Content (Knowledge, Skills & Values)

1. Matrices
2. Sequences and series
3. Combinatorics and probability
4. Statistics and data analysis

Resources, Activities & Assessments

1. Advanced Mathematical Concepts
Gordon, Yunker, Crosswhite, Vannatta
Glencoe Publishing Co., 1994
2. Calculators
3. Worksheets
4. Assessment tools will include: tests, quizzes, homework assignments, and in-class assignments

Department Course Goals

Course Code **GEOM3**

Course Name **GEOMETRY**

Goals

1. Students will communicate through appropriate vocabulary and symbols as appropriate to geometry, algebra and trigonometry.
2. Students will identify problems, make logical connections and use the appropriate geometric, algebraic and trigonometric skills to solve the real world problems.
3. Students will recognize Geometry as an essential part of mathematical development.
4. Students will demonstrate responsibility in learning geometric skills.
5. Students will exhibit greater confidence in their mathematical abilities as they experience success in Geometry.

Content (Knowledge, Skills & Values)

1. Points, lines, planes and graphs
2. Formal logic and reasoning
3. Sets of lines
4. Identifying and comparing triangles
5. Quadrilaterals and other polygons: congruence and similarity
6. Areas of polygons, circles and complex figures
7. Volume of prisms, cylinders, pyramids and cones
8. Introduction to trigonometric functions

Resources, Activities & Assessments

1. Geometry, Glencoe, McGraw-Hill. New York, 1998 and all teacher resources
2. Critical thinking activities
3. Assessment: daily review of homework, class projects, quizzes and tests.

Department Course Goals

Course Code **GEOMB**

Course: **GEOMETRY B**

Goals

1. Students will use appropriate geometric terms and symbols in their writing and speaking.
2. Students of Geometry will make logical connections of algebraic techniques as necessary information in solving problems.
3. Students will use appropriate geometric problem solving skills.
4. Students will identify problems and use appropriate geometric problem solving skills.
5. Students will use appropriate geometric problem solving skills.
6. Students will recognize Geometry as an essential part of mathematical development.
7. Students will demonstrate responsibility in learning geometric skills.
8. Students will exhibit more confidence in their mathematical abilities as they find success in Geometry.

Content (Knowledge, Skills & Values)

1. Points, lines, line segments, angles, planes and graph
2. Identifying and comparing triangles
3. Quadrilaterals and other polygons: congruence and similarity
4. Areas of polygons, and circles
5. Volume of prisms, cylinders, pyramids and cones

Resources, Activities & Assessments

1. Geometry, Glencoe, McGraw-Hill. New York, 1998 and all teacher resources
2. Critical thinking activities
3. Assessment: daily review of homework, class projects, quizzes and tests.
4. Calculators

Math Department Course Goals

Course Code MATH1

Course Name: Math Lab

Goals

1. Students will show an appreciation for math and its cumulative nature.
2. Students will exhibit confidence in their mathematical abilities as a result of taking this class.
3. Students will master the four math operations and apply them correctly solving whole number, decimal, fraction and percent problems
4. Students will demonstrate individual responsibility for learning life-long math skills.
5. Students will employ critical thinking skills when modeling math algorithms to real-world situations.

Content (Knowledge, Skills, and Values)

1. whole numbers
2. decimal numbers
3. fractions
4. ratios, proportions, and percents
5. data and graphs
6. properties of whole numbers
7. geometry and measurement

Resources, Activities, and Assessments

1. Mathematics Course 1 Prentice Hall 2008 Charles, Randall
2. Homework Helper website PHSchool.com
3. Calculators
4. Written tests about every three weeks
5. Classroom vocabulary posters permanently displayed
6. Problem-of-the-Day quizzes
7. Manipulatives: fraction, decimal, percent

Math Department Course Goals

Course Code MATH2

Course Name: Math Lab II

Goals

1. Students will show an appreciation for math and its cumulative nature.
2. Students will exhibit confidence in their mathematical abilities as a result of taking this class.
3. Students will master the four math operations and apply them correctly solving whole number, decimal, fraction and percent problems
4. Students will demonstrate individual responsibility for learning life-long math skills.
5. Students will employ critical thinking skills when modeling math algorithms to real-world situations.

Content (Knowledge, Skills, and Values)

1. whole numbers
2. decimal numbers
3. fractions
4. ratios, proportions, and percents
5. data and graphs
6. properties of whole numbers
7. geometry and measurement
8. patterns, variables, and one-step algebraic equations
9. probability
10. integers
11. equations and inequalities

Resources, Activities, and Assessments

1. Mathematics Course 1 Prentice Hall 2008 Charles, Randall
2. Homework Helper website PHSchool.com
3. Calculators
4. Written tests about every three weeks
5. Classroom vocabulary posters permanently displayed
6. Problem-of-the-Day quizzes
7. Manipulatives: fraction, decimal, percent

Department Course Goals

Course Code MATH45

Course Name MATH CONCEPTS

Goals

1. Students will show appreciation for mathematics and exhibit confidence in their mathematical ability in math concepts.
2. Students will apply appropriate processes in simple problem solving found in math concepts.
3. Students will identify and model solutions to real world consumer problems.
4. Students will logically communicate using mathematical vocabulary and symbols appropriate to math concepts.
5. Students will use technology in math concepts to enhance mathematics learning and computation.

Content (Knowledge, Skills & Values)

1. Compute functions with and without calculators.
2. Solve simple algebraic equations.
3. Mathematic solutions in personal finance practices and real life situations

Resources, Activities & Assessments

1. Internet sites: Edmunds.com, cbgundaker.com, stlcc.edu
2. Calculators
3. Pricing guides for building materials
4. Projects, quizzes, tests, homework

Mathematics Department Course Goals

Course Code **PREALG**

Course Name **Pre-Algebra**

Goals

1. Students will demonstrate an increased pre-algebraic vocabulary.
2. Students will demonstrate a better understanding of pre-algebraic concepts.
3. Students will exhibit a working knowledge of pre-algebraic skills and methods.
4. Students will apply pre-algebraic methods and formulas in problem solving situations.
5. Students will show a greater appreciation of mathematics based on their understanding of Pre-Algebra concepts.
6. Students will exhibit more confidence in their mathematical abilities as they find success in Pre-Algebra.
7. Students will exhibit better preparedness for future courses in high school (particularly Algebra I and Algebra II) as a result of the knowledge and skills gained in Pre-Algebra.

Content (Knowledge, Skills & Values)

1. Algebraic expressions and integers
2. The coordinate plane
3. Equations, including two-step and multi-step equations
4. Inequalities and graphing
5. Decimals and fractions
6. Factors and exponents
7. Scientific notation
8. Addition, subtraction, and multiplication of polynomials
9. Linear functions and graphing

Resources, Activities & Assessments

1. Pre-Algebra Textbook
Charles, Davison, Landau, McCracken, Thompson
Prentice-Hall, 2004
2. Math worksheets and puzzles
3. Calculators (optional)
4. Assessment tools: tests, quizzes, projects, homework assignments, in-class assignments

Department Course Goals

Course Code STATS

Course Name STATISTICS

Goals

1. Students will demonstrate a basic understanding of the vocabulary of statistics.
2. Students will analyze data by describing data using graphs and numerical summaries.
3. Students will examine and interpret the overall pattern of a distribution.
4. Students will examine the relationships between two or more variables in the statistical data.
5. Students will construct mathematical models for statistical data.
6. Students will exhibit more confidence in their mathematical abilities as they find success in Statistics.
7. Students will exhibit better preparedness for future courses in college as a result of the knowledge and skills gained in Statistics.

Content (Knowledge, Skills & Values)

1. Graphic displays and numerical descriptions of data distributions
2. Density curves, normal distributions, standard normal calculations
3. Scatterplots
4. Correlation
5. Regression
6. Modeling non-linear data
7. Relations in categorical data

Resources, Activities & Assessments

1. The Practice of Statistics
Yates, Moore, McCabe
W. H. Freeman and Company, 1999
2. Graphing calculators
3. Worksheets
4. Assessment tools will include: tests, quizzes, homework assignments, and in-class assignments

Department Course Goals

Course Code TRIG

Course Name TRIGONOMETRY

Goals

1. Students will demonstrate a basic understanding of trigonometric vocabulary.
2. Students will demonstrate an understanding of fundamental trigonometric concepts.
3. Students will exhibit a working knowledge of trigonometric skills and methods.
4. Students will apply trigonometric methods and formulas in problem solving situations.
5. Students will show a greater appreciation of mathematics based on their understanding of trigonometric concepts.
6. Students will exhibit more confidence in their mathematical abilities as they find success in Trigonometry.
7. Students will exhibit better preparedness for future courses in high school and college as a result of the knowledge and skills gained in Trigonometry.

Content (Knowledge, Skills & Values)

1. Trigonometric functions
2. Acute angles and right triangles
3. Radian measure and circular functions
4. Graphs of the trigonometric functions
5. Trigonometric identities
6. Applications of trigonometry

Resources, Activities & Assessments

1. Trigonometry
Lial, Hornsby, and Schneider
Pearson/Addison-Wesley, 2005
2. Graphing calculators
3. Worksheets
4. Assessment tools will include: tests, quizzes, homework assignments, and in-class assignments