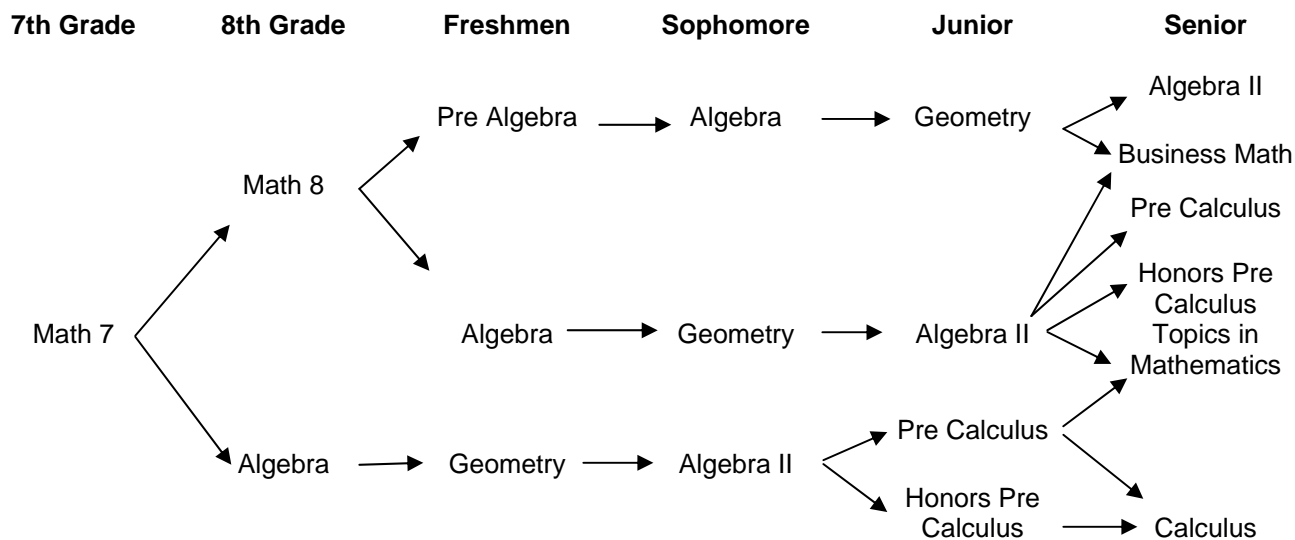


MATHEMATICS DEPARTMENT

PHILOSOPHY

The mathematics department at Bishop Neumann believes that it is important, first of all to discover the strengths and needs of its mathematics students. The courses offered are of various levels of difficulty so that each student can achieve success and yet be challenged to expand his/her mathematical skills and knowledge. We believe a good background in math is necessary for our students who live in a technological society.

The following flow chart shows the progression and sequences of math courses offered at Neumann High School.



OBJECTIVES:

The Department will strive to teach the student how to:

1. Develop skills in basic mathematical operations.
2. Relate mathematical concepts to everyday life.
3. Develop an understanding of reasoning processes and problem solving techniques.
4. Use appropriate technology as a mathematical tool.
5. Obtain the skills necessary for general educational, vocational pursuits and higher education.

COURSE OFFERINGS AND DESCRIPTIONS

Algebra I

(Full Year – 10 credits)

Grades 8 – 10

Topics studied in Algebra I will include: The Language of Algebra, Variables and Expressions; Operations on Real Numbers; Solving Linear Equations; Graphing Relations and Functions; Analyzing Linear Equations; Solving Linear Inequalities; Solving Systems of Linear Equations; Polynomials; Factoring.

Prerequisite: CTBS Mathematics Scores and Recommendation of the Department.

Algebra II (Full Year – 10 credits) Grades 10 – 12

Topics studied in Algebra II will include: Solving Equations and Inequalities; Linear Relations and Functions; Systems of Equations and Inequalities; Matrices; Polynomials; Quadratics; and Rational Expressions.

Prerequisites: Algebra I, Geometry and Recommendation of Department

Business Mathematics (Full Year – 10 credits) Grades 12

This course deals with general business math problems: cash records, purchasing, personal finance, savings and investments, loans and small business problems.

Prerequisite: Recommendation of Department. Seniors Only

Calculus (Full Year – 10 credits) Grade 12

Calculus begins with a short review of Pre-calculus. Derivatives and their integrals will be the main focus of this course. First and second derivatives of equations, functions, distance, parametrics, trigonometry, inverse trigonometry, logarithms and applications will be covered in depth. Weighted.

Prerequisite: 93% in Pre Calculus or Honors Pre Calculus and Departmental Recommendation.

Geometry (Full Year – 10 credits) Grades 9 – 11

Geometry students use the textbook Discovering Geometry, which provides them with an inductive approach to this topic. Students are introduced to inductive reasoning by looking at patterns, and learn basic constructions with compass and straightedge. Students actually create geometry for themselves through investigations and hands-on activities related to the topics traditionally studied in Geometry: angles, triangles and other polygons, circles, area and volume of figures, similarity, the Pythagorean Theorem and an introduction to trigonometry. Formal proofs are introduced at the end of the course. Chapters in which students create tessellations and other forms of geometric art show the beauty of geometry.

Prerequisite: Algebra I

Pre Algebra (Full Year – 10 credits) Grades 9

This course introduces variables, expressions, equations and graphing, as well as a five-step problem solving strategy to help students apply mathematical concepts.

Prerequisite: Recommendation of Department

Pre Calculus (Full Year – 10 credits) Grades 11 – 12

Topics studied in Pre Calculus will include: Solving Linear Equations and Inequalities: Algebraically, Numerically, Graphically, Using the Quadratic Equation and Square Root Principle; Conic Sections, 12 Basic Functions and Their Graphs; Operations on Functions; Trigonometry and Vectors.

Prerequisites: Algebra II, Recommendation of Department

Honors Pre Calculus (Full Year – 10 credits) Grades 11 – 12

Topics studied in Honors Pre Calculus will include: Solving Linear Equations and Inequalities: Algebraically, Graphically, Using the Quadratic Equation, and Square Root Principle; Conic Sections, 12 Basic Functions and Their Graphs; Operation on Functions; Exponential and Logarithmic Functions; Trigonometry; Vectors; Introduction to Limits, Derivatives, and Integrals. Weighted.

Prerequisites: B+ in Algebra II, Recommendation of Department

Topics in Mathematic

(Full Year – 10 credits)

Grade 12

Topics in Math is a full year course offering two separate semester courses. As a fourth year math requirement students must take both semesters of this course. As an elective course for those seniors who have already taken four years of math, students may take one of the two semesters.

Trigonometry (Semester – 5 credits)

This course will be taught during the first semester of the year covering topics of trigonometric ratios and circular functions.

Statistics (Semester – 5 credits)

This course will be taught during the second semester of the year covering the study of data analysis involving sampling, organization and interpretation of data. The study of probability through experiential and theoretical approaches.

Prerequisites: Recommendation of Department. Seniors Only