Geometry

I. General Information

Teacher: Mr. Salvatore Brusco
Email: sbrusco@geibelcatholic.org
Free Periods: Day A: periods 1 and 2; Day B: period 3

II. Course Description

Geometry covers the required concepts of Euclidean geometry including definitions, postulates, and theorems. Areas of study include angles, parallel lines, congruent and similar triangles, polygons, circles and arcs, and the Pythagorean Theorem. Special topics covered include coordinate and spatial geometry, introductory trigonometry, and constructions and loci. In addition to including problems which serve to review algebra, the process of "proving" theorems is introduced. Also covered is area and volume. Geometry is a prerequisite for Algebra II.

III. Text and Supplemental Material

Jurgensen, Ray C., Richard G. Brown, and John W. Jurgensen. *Geometry*. Evanston: McDougal Littell, 2000. Print.

IV. Supplies Needed

Students will need to bring their laptop or tablet, notebook, and pencil every day. Students are required to have a scientific calculator.

V. Grading Scale and Evaluations

Student grades will be based on several methods of assessment, including homework assignments, tests and quizzes, projects, a few assignments, and class participation. Quarterly and final grades will be based on the following grading scale:

96 –100%= A	81 – 84% = C+
93 – 95% = A-	78 – 80% = C
90 – 92% = B+	75 – 77% = C-
88 – 89% = B	70 – 74% = D
85 – 87% = B-	0 - 69% = F

VI. Guidelines

Students are expected to be respectful of the teacher, their classmates, and school property. They must also show responsibility for their own learning by coming to class prepared and by following all school policies. More information can be found in Geibel Catholic's student handbook.

Unit 1: Tools of Geometry

- Points, Lines, Rays, Segments, and Planes
  - Opposite Rays
  - Distance on a line
- Measuring
  - Angles with a protractor
  - Lines in metric and standard
- Coordinate Geometry
  - Midpoint
  - Slope
- Angles
- Angle Pairs
  - Complimentary
  - Supplementary
  - Vertical
- Naming Shapes
  - Triangles by sides
  - Triangles by angles
  - By number of sides
- Convex and Concave Polygons

Unit 2: Reasoning and Proof

- Patterns
- Conditionals
- Converses
- Biconditionals
- Deductive Reasoning
- Algebraic Proofs
- Using Angles in Proofs
  - Vertical Angles
  - Supplementary Angles
  - Complimentary Angles
- Inductive Reasoning

Unit 3: Parallel and Perpendicular

- Transversals
  - Corresponding
  - Alternate Interior/Exterior
  - Same-Side Interior/Exterior
- Converse of Transversals
- Perpendicular Transversals
- Application in Coordinate Geometry

Unit 4: Congruent Triangles

- Define Congruent
- SSS, SAS, ASA

- AAS, HL
- CPCTC
- Isosceles Triangle Theorems
- Overlapping Parts

Unit 5: Relationships in Triangles
- Median and Altitude
- Perpendicular Bisector and Angle Bisector
- Triangle Inequalities (a+b>c)

Unit 6: Polygons and Quadrilaterals
- Polygon Angle Summation Theorems
- Properties of Parallelograms
- Prove Quadrilaterals to be Parallelograms
- Diagonals of Rhombus, Rectangle, or a Square
- Prove that a Shape is a Rhombus, Rectangle, or a Square
- Trapezoids and Kites
- Polygons in Coordinate Geometry

Unit 7: Similarity
- Ratios and Proportions
- Similar Polygons
- AA, SSS, SAS
- Triangle Proportionality Theorem
- Triangle Angle-Bisector Theorem
- Geometric Mean
- Right Triangles

Unit 8: Right Triangles and Trigonometry
- Pythagorean Theorem
- Converse of the Pythagorean Theorem
- Special Right Triangles
- Sine, Cosine, and Tangent
- Angles of Elevation and Depression
- Vectors and Their Components

Unit 9: Area
- Parallelogram
- Trapezoid
- Rhombus
- Triangles
- Kites
- Regular Polygons
- Circles
- Irregular Polygons

- Geometric Probability

Unit 10: Surface Area and Volume
- Prisms
- Pyramids
- Spheres

Unit 11: Transformation (optional)
- Translation
- Rotation
- Reflection with Reflectional Symmetry
- Dilation

Unit 12: Circles (optional)
- Chords
- Arcs
- Tangents
- Inscribed Angles
- Circumscribed Angles
- Angle Measures and Segment Lengths