HONORS GEOMETRY
2013-2014

Course Description:
This course is designed to encourage students to proceed on their own and to develop confidence in their ability to read and interpret mathematical texts. Inductive and deductive reasoning are emphasized in both mathematical and non-mathematical situations. While developing the method and meaning of mathematical proof, the major principles of logic are emphasized. Both direct and indirect proofs are used to provide an understanding of two- and three-dimensional relationships. Compass and straightedge constructions also are discussed. A scientific calculator is required for this course.

Course Content:
1. Points, Lines, Planes and Angles: Understanding and Working with Basic Geometric Figures, Distance and Midpoint, Postulates and Theorems Relating Points, Lines and Planes
2. Deductive Reasoning: If -Then Statements, Converses, Inverses, Contrapositives, Types of Reasoning
3. Properties from Algebra: Planning and developing a Proof
4. Proving Theorems
5. Special Pairs of Angles with Perpendicular Lines
6. Parallel Lines and Planes: Types of Lines and Planes, Properties of Parallel Lines, Proving Lines Parallel, Slope
7. Triangles: Angles of a Triangle, Angles of a Polygon, Congruent Triangles, Congruent Figures, Ways to Prove Triangles Congruent, Using Congruent Triangles, Isosceles Triangle Theorems, Using More than One Pair of Congruent Triangles, Angle Bisectors, Medians and Altitudes of Triangles, Perpendicular Bisectors
8. Basic Constructions, Constructions with Straightedge and Compass, Proofs, Applications, Geometer Sketchpad Usage
9. Quadrilaterals: Properties of Parallelograms, Ways to Prove Quadrilaterals are Parallelograms, Theorems Involving Parallel Lines, Special Parallelograms, Trapezoids
10. Inequalities in Geometry: Inequality Properties, Corollaries and Theorems of Inequality, Inequalities in One Triangle, Inequalities in Two Triangles
11. Similar Polygons: Ratios and Proportions, Properties of Proportion, Similar Polygons, Proportional Lengths
12. Right and Oblique Triangles: Similarity and Right Triangles, Pythagorean Theorem, Converse Pythagorean Theorem, Special Right Triangles, Trigonometric Ratios of an Acute Angle in a Right Triangle, Law of Sines, Law of Cosines, The Unit Circle in degrees and radians, Area of a Triangle, Angles of Elevation and Depression
13. Circles: Basic Circle and Sphere Terminology, Tangents, Arcs, Angles of a Circle, Chords, Secant Segments, Tangent Segments, Circumference of Circles
14. Areas of Plane Figures and Polygons
15. Surface Areas and Volume of Solids
16. Arc Lengths

17. Ratios of Areas
18. Geometric Probability

Required Textbooks and/or Other Reading/Research Materials
The Holt McDougal textbook has an online textbook available.

Geometry, McDougal Littell- Houghton Mifflin, Copyright 2000
Geometry, Holt McDougal, Copyright 2012
Compass, Protractor, Straightedge, Scientific Calculator or Graphing Calculator, Geometer Sketchpad.

Course Requirements:
Each student is required to complete all tests, projects and assignments. Failure to do so will affect the student's overall grade.

Grade Components/Assessments:
Grades will be based on a point system that will be converted to overall percentages.
The following methods will be used, for the year, to assess and evaluate student performance.

Tests: 50 % - 60 %
Quizzes: 20 % - 25 %
Homework: 20 % - 25 %
Alternative Assessment: 5 % - 10 %

Additional alternative assessments are often included in one of the other three categories above. Based on our mission of giving every student a chance to reach his/her fullest potential, students will be allowed to make up work missed due to excused absences as stated in the student handbook and are encouraged to get additional help whenever necessary for better understanding of class concepts.

Each marking period is worth 20% of a student's overall grade. The midterm and final exam are each worth 10% of a student's overall average:

Quarter 1	20%
Quarter 2	20%
Midterm	**10%**
Quarter 3	20%
Quarter 4	20%
Final	**10%**

Required Summer Reading/Assignments:
none