

Mr. Ahrenholz
Geometry Honors

(678) 718-8015

jahrenholz@greenville.k12.sc.us

Course Description: Geometry Honors

Geometry students study congruence and similarity through analyses of transformations and formal constructions. They also study the properties of triangles and quadrilaterals, the Pythagorean Theorem, special right triangles, and right-triangle trigonometry. Additional topics include circles, coordinate geometry, and area and volume of 2- and 3-dimensional shapes. Students develop formal proofs using a variety of formats. The Mathematical Practice Standards also apply throughout the course.

Honors courses taught in Greenville County Schools should align with the South Carolina Honors Framework. Key components of honors courses include:

- Alignment with South Carolina standards and indicators.
- Alignment with Profile of the South Carolina graduate.
- Learning and enrichment opportunities that extend beyond the standard coursework in CP level courses.
- An expectation of quality work the advanced learner is equipped to produce.
- Instruction of material in greater complexity, novelty, and acceleration.
- Diverse learning strategies such as:
 - Student-initiated research
 - Student engagement and collaboration
 - Project-based learning
 - Problem-solving and critical thinking
 - Creativity and innovation (eg. student portfolios and performance tasks)

Objectives:

Unit 1: Foundations & Parallel/Perpendicular

This unit begins by focusing on the measurements and properties of line segments and angles. This unit also focuses on the properties of parallel lines and the angle relationships formed when parallel lines are cut by a transversal. The rest of the unit examines how these angle relationships can help prove whether or not lines are parallel, the relationships between parallel lines, and the relationships between the slopes of parallel and perpendicular lines.

For honors, this unit also gives an introduction to proofs. Honors students examine the nature of basic reasoning in both inductive and deductive forms, explore if-then statements, and write their first proofs.

Unit 2: Transformations

This unit begins by focusing on transformations, moving from the definition of rigid motion to the rigid transformations: reflections, translations, and rotations. The rest of the unit examines how transformations can be combined to create new images and complete proofs such as the proof for demonstrating that a composition of two or more rigid motions is also a rigid motion.

Unit 3: Triangles and Triangle Congruence

This unit focuses on congruence and transformations resulting in congruent figures. The lesson includes the definitions of congruence and congruence transformations. Students will then explore various triangles and define congruence theorems that prove triangles are congruent given congruent angles and sides of triangles.

Unit 4: Quadrilaterals

This unit focuses on quadrilaterals, examining properties and conditions of parallelograms and special parallelograms.

Unit 5: Similarity

This unit begins with an examination of dilations and similarity transformations. These concepts are then applied to triangles; students examine the criteria for proving two triangles similar. Students consider proportions in triangles.

Unit 6: Right Triangles and Trig

The unit begins by applying properties of similar right triangles to understand the Pythagorean Theorem, relationships in special right triangles, and trigonometric ratios. Students then apply what they have learned to various contextual problems.

For honors, this unit give students the opportunity to solve right triangles using the Law of Sines and Law of Cosines

Unit 7: Circles

This unit begins with an examination of arc length, sector area, and segment area. Students then examine properties of tangents, chords, and inscribed angles. Finally, students learn about the properties of angles, arcs, and segment lengths that are formed when two lines intersect inside or outside a circle.

Unit 8: Two and Three Dimensional Models

This unit begins with students examining different three-dimensional figures and their two-dimensional cross sections. Students then discover and apply the volume and surface area formulas for prisms, cylinders, pyramids, cones, and spheres to solve problems.

Unit 9: Probability and Statistics

This unit begins with extending a student's previous knowledge of ratios and basic probability to the probability of multiple events. Students will then analyze the relationship between variables by observing any association, eventually asking and answering statistical questions.

Standards: link to South Carolina College and Career Readiness Standards are posted on my teacher website

Grading:

Quizzes/Classwork 30%,

Tests/Projects 60%,

Final Exam 10%

- Assignments will be graded on both effort and sometimes for accuracy.
- Quizzes and Tests will be graded on accuracy.
- Some quizzes will be announced while others will be pop quizzes.
- You may retake one test per nine weeks. This test will replace your original test grade, whether higher or lower. The “retest” will not be the same test as the original test but will cover the same material.
- Tests will be announced at least one week prior to test day as well as posted on the board.
- A final exam will be given at the end of the semester... NO EOC.
- Projects will be graded on both attempt and accuracy. Rubrics for projects will be given when projects are assigned so the students know the expectations.

Google Classroom

Students are to check google classroom **especially in the case of an absence** to receive all work and assignments for the day. All videos, classwork, notes and assignments given or used in class will be posted there under the classwork tab.

Grading Scale:

A: 90-100 B: 80-89 C: 70-79 D: 60-69 F: 59 or below

Supplies: Students will need:

- Pencils
- Notebook
- 3 ring binder or folder
- Optional - expo markers, colored pens as this helps with color coding notes, etc.

Attendance Policy:

Absences in High School are accrued per course. Any absence in excess of 5 days may cause the student to lose credit for a 90-day semester course. Absences that are medical (doctor notes), bereavement, and/or Principal Approved are not included in the maximum absences. Students must be present a minimum of 45 minutes of the class to be counted as present.

Tardies: Students must be in the room in their seat when the bell rings. Consequences for tardies are as follows: 1st tardy – warning, 2nd tardy – warning and phone call to parent, 3rd tardy – warning and phone call to parent, 4th tardy – referral. All tardies beyond the 4th tardy will result in a referral.

Communication: Student grades will be updated in PowerSchool at least once a week. Please check the parent portal weekly for grades on assignments as well as an updated average. Parents and students can text me anytime on my google number (678) 718-8015 or email me at jahrenholz@greenville.k12.sc.us with any questions or concerns.

Student Responsibilities:

1. Be on time - in your seat when the bell rings
2. Be seated - Stay in your assigned seat unless the teacher gives you permission to be up
3. Be prepared
 - Bring your chromebook, notebook, textbook and pencil to class daily
 - Make sure your chromebook is charged
4. Be respectful of the speaking voice during instruction time - Show respect for your teachers AND your classmates

General Information:

Come to class prepared. Bring your notebook, chromebook, calculator, pencil and colored markers/pens to class every day. Each day you will be assigned homework. Make sure it is completed by the due date. Late work policy is below:

- Students will receive a 100 on minor assignments turned in on time.
- Students will receive 75% on minor assignments turned in 1 day late.

- Students will receive 50% on minor assignments turned in 2 days late. This policy does not apply to students who are absent for instruction.

Brain Gym This is FREE after school tutoring in all subject areas offered every Tuesday and Thursday from 4 pm to 5 pm in Mrs. Antione's room, room 258.

Food/Drinks Please no food or drinks in the classroom. Water is allowed.

Cell Phone Policy New cell phone policy from the state and adopted by our school district effective Jan 2025 is as follows

All student cell phones and personal electronic devices must be stored in backpacks, lockers, or in a location directed by the school; this includes smartwatches, earbuds, and all other personal electronic devices and accessories.

High school students may not use electronic devices outside of the classroom unless that use is for instructional/school-related activities as approved by the school, such as checking grades, emailing teachers, referencing their schedule, using the phone to pay for lunch, etc.

Consequences-

1st infraction/referral: School level detention

2nd infraction/referral: ISS

3rd infraction/referral: OSS

Textbook

Hard Copy: SAVVAS enVision Geometry

Online Version: SAVVAS EasyBridge