# Geometry

Yearlong Course

**Sherry Joslin "Mrs. J"**

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## ELIGIBLE STUDENTS:

**Grades 10th, advanced 9th (9th – 12th welcomed):** This course is designed for students who have successfully completed Algebra I.

**School-wide Class Dates:** Tuesday, September 6, 2022; through Friday, May 26, 2023.

## SCHEDULE FOR GEOMETRY

Course starts **Wednesday, September 7, 2022,** and will end **Friday, May 26, 2023**.

| Section | Geometry Sessions | Eastern Standard Time |
|---|---|---|
| 2 | Mondays, Wednesdays, Fridays | 11:00 a.m. to 12:15 p.m. |
| 3 | Mondays, Wednesdays, Fridays | 2:00 p.m. to 3:15 p.m. |

**95** sessions (in 32 Weeks) on the following dates. *

| Month | # | Session Dates |
|---|---|---|
| September | 11 | 7, 9, 12, 14, 16, 19, 21, 23, 26, 28, 30 |
| October | 13 | 3, 5, 7, 10, 12, 14, 17, 19, 21, 24, 26, 28, **31 [QII Starts]** |
| November | 10 | 2, 4, 7, 9, 11, 14, 18, 18, **[Thanksgiving Break],** 28, 30 |
| December | 7 | 2, 5, 7, 9, 12, 12, 14, **[Christmas Break]** |
| January | 11 | 9, 11, 13, 16, 18, 20, **[End 1st Semester],** 23, 25, 27, 30 |
| February | 9 | 1, 3, 6, 8, 10, 13, 15, 17 **[Winter Break],** 27 |
| March | 13 | 1, 3, 6, 8, 10, 13, 15, 17, 20, 22, 24, **27 [QIV Starts],** 29, 31 |
| April | 9 | **[Holy Week],** 10, 12, 14, 17. 19, 21, 24, 26, 28 |
| May | 12 | 1, 3, 5, 8, 10, 12, 15, 17, 19, 22, 24, 26, **[End 2nd Semester]** |

**Please note that all dates are subject to change as the instructor's circumstances might dictate (e.g., illness, family emergency). Any classes canceled by the instructor will be made up at an alternate time designated by the instructor.*

## GEOMETRY COURSE MAP:

Unit 1: Tools of Geometry, Angles and Geometric Figures, Logical Arguments and Lines
Unit 2: Transformations and Symmetry, Triangles and Congruence
Unit 3: Quadrilaterals, Similarity, and Right Triangles and Trigonometry
Unit 4: Circles, Measurement, and Probability

## OFFICE HOURS: Mondays 12:30 am - 1:30 a.m. EST or other days by appointment.

Students and/or parents can request meetings to ask questions, seek assistance, or review class material that are brief in nature, however, such meetings are not meant to be tutoring sessions.

## GEOMETRY COURSE DESCRIPTION:

The objective of this Geometry course is to serve as a study of Geometry from both a classical and modern perspective, exploring parallels and contrasts between the two. The course will follow the path set by Euclid of studying definitions, postulates, and theorems. They will develop logical and spatial reasoning as they work on writing proofs weekly. This study will serve as a backdrop as we utilize the theorems to solve modern geometric problems. Students will study angles, lines, triangles, polygons, circles, area and volume, coordinate geometry, and trigonometry. Students will explore connections between math and everyday applications through problem-solving and hands on activities. They will study Greek Geometry, Euclid and Descartes, the history of geometry and what led to its merger with Algebra. Thus, they will understand geometry from a classical viewpoint and both modern viewpoints (proof-driven versus Algebra-driven).

## SUMMER ASSIGNMENTS:

Students will receive early, summer access to ALEKS and complete moderate summer assignments to maintain retention, remediate if necessary, and ensure readiness.

## REQUIRED MATERIALS:

- **Euclid Elements, Heath Translation (choose one option below)**
  - Free web version: Clark University, Archive.org
  - Free PDF: Wilbour Hall, Univ Texas with Greek
  - Purchase Print Book: Amazon (this should not be necessary unless it is your preference) ○

  This book will provide our classical viewpoint of geometry, including writing proofs. We will discuss Euclid's proofs, compare them to modern textbook proofs, and write our own proofs.

- **Digital Textbook: Reveal Geometry with ALEKS**
  - The instructor does not teach from the book but uses it for example problems, class work problems, student reference, and course structure. The book represents the mod ern viewpoint of geometry; solving geometric problems using algebra, which students need to learn to prepare for future courses, real world applications, and future exams. Notwithstanding, this book also covers logical reasoning and writing proofs.

- ALEKS delivers practice problems to students in a manner that promotes mastery and retention. Students work problems on paper and turn them in to the instructor for re view. Students are required to correct their work using ALEKS' step-by-step solution; thus, they learn from their errors before trying another similar problem. This provides students the opportunity to learn to solve geometry on paper and digitally, which is a 21st century skill.
- Purchased via instructor ($40) by 5/31. Info. will be sent via email in May. •

**Mathematics for the Nonmathematician** (used print or digital is ok) ○ This text will be used to learn some of the related history and philosophy of the concepts covered. Provides students with interesting and challenging problems.

>Digital Tablet. Chose from: Wacom Intuos, Huion, XP-Pen, or
• Three-ring notebook with five dividers or 5 subject spiral.
• Binder Pencil Pouch with multiple sharpened pencils, erasers, protractor, and a drawing compass or bullseye compass, square patty paper (we do not need this much patty paper, so you can opt to use typing paper or similar) --- these are examples only, less expensive items are acceptable • Scientific Calculator Examples: TI, Sharp, other
• Notebook Paper and Graph paper
• Free web accounts: student.desmos.com, ziteboard.com, desmos.calculator, ○ Ziteboard is used often as a virtual classroom chalkboard, the others are used sparingly

In addition, the instructor will provide pdf files or problems from various sources.

## OPTIONAL MATERIALS:

• Paper versions of the digital textbook (this would be in addition to the digital text, not instead of): Textbook Vol 1 and Textbook Vol 2. Used from Amazon: Textbook Volume 1 & Textbook Volume 2

## PARENT EXPECTATIONS IN ACTION

Parents expectations are simply to ensure that the student has all the required materials needed for the course, a stable internet connection, a distraction free environment during class, and adequate time to study outside of class hours. Parent assistance with assignments is not expected and should not be required. If a student is struggling with an assignment, parents are asked to follow the provided Parental Math Assistance Guide. However, if your student is accustomed to having your assistance with math, there will likely be a transition period as they build their level of tolerance and confidence in working math independently.

## STUDENT EXPECTATIONS IN ACTION

In this class, students will be expected to listen attentively and participate actively. Students are expected to arrive to class on time and with all assigned material completed. The instructor will facilitate learning for the student, but the responsibility for staying up to date with classwork and assignments ultimately falls to the student. If a student is struggling with content or an assignment, it is their responsibility to seek approved help. Students should not utilize technology to complete their assignments for them.

The course relies heavily on discussion as students are asked to think about and question what they are learning. During the discussion, students will present problems, review answers, pose questions, explain, and justify their answers, and think out-loud. Students are encouraged to embrace their mistakes as opportunities to learn. A FAIL is a first attempt in learning.

Time Commitment – Due to the nature of the course, it is recommended that students plan to spend 3-6 hours per week on mathematics beyond class hours.

Students turning in late work will earn a 10% penalty for each day the assignment is late. Late work will not be accepted after the 3rd day. Students will submit their work by scanning their homework pages and uploading it into the Schoology assignment. **Assignments should be sub mitted as <u>one</u> pdf file. <u>Photographs of completed assignments will not be accepted.</u>**

## STUDENT EXPECTATIONS: EXECUTIVE FUNCTION SKILLS

Students enrolling in Scholé Academy's Mathematics Program will be expected to show development of Executive Function Skills throughout the year. Executive Function Skills speaks to a set of qualities and skill sets students can develop and hone to better approach the courses, lectures, readings, and teachers they will face in their future academic coursework.

Executively, students are expected to be:

1. **An Engaged Student:** One who is not easily distracted by their surroundings and is willing to step into the arena of class discussion, ask questions, supply answers, generate the internal dialogue necessary to determine if what's being discussed is important and necessary to himself.

2. **Note Takers:** A student who during and after being engaged with the class has been trained to note important and relevant content in an organized manner. His notes would then be consulted, independently, for application in assignments and assessments.

3. **Attention to Detail & Preparedness:** These students are ones who consistently adhere to deadlines, submission requirements, assignment instructions, and confirm technology is working prior to the start of class. This student is responsible in determining how to proceed after an absence and adjusting as the class proceeds, etc.

4. **Employ Critiques:** These students are ones who receive feedback to one of their submissions, and then are sure to apply that feedback to future assignments rather than repeating mistakes. These students also glean information from the live class critiques of fellow students and note mistakes to avoid by learning from others.

5. **Initiative/Maturity:** During class this student will display a level of maturity that exhibits an ability to focus and engage in his learning and refrain from activities that cause him to become a distraction for others. The student exhibits the maturity to seek out appropriate sources of assistance when struggling with assignments or problems.

## STUDENT EVALUATION: GRADING

Grades are a feedback mechanism from the teacher to the student as to their level of mastery. In line with a theme of restfulness, assignments will be communicated using a Mastery Scale as de fined below. The purpose of this grading scale is to provide students with a clear, unambiguous message as to their level of mastery. Additionally, it provides the students with the opportunity to focus on mastery of the content rather than grades.

Inasmuch as you might be fully on board with this grading method in theory, there will undoubtedly be the need to complete a college transcript with either a numeric or traditional letter grade. Traditional percentage grades will be provided for transcript purposes upon request and at the end of the year.

The Mastery Grade Scale is as follows:

- Master: this grade will be rewarded to a student whose work shows mastery. - Journeyman: this grade will be rewarded to students who are near mastery. - Apprentice: this grade will be rewarded to students who require more review or practice. - Novice – this grade indicates the student did not exhibit sufficient learning. Passing the class, generally requires a grade of Journeyman.

## STUDENT EVALUATION: ASSIGNMENTS, TYPES & WEIGHTS

Mrs. Joslin will communicate with students regarding assignment feedback and grading through the free online grading system, Schoology. Students' grades will be comprised of:

| Learning Level | Resource | Grade Category and Weight |
|---|---|---|
| **Discovery (10%):** | Euclid Elements<br>Mathematics for Nonmathematicians | Participation: 10% |
| **Construction (25%):** | Euclid Elements<br>Reveal Geometry | Proofs: 30% |
| **Application (35%):** | Reveal Geometry<br>Mathematics for Nonmathematicians | Algebraic Problems: 30% |
| **Summation (30%):** | Instructor | Assessments: 30%<br>Projects: 10% |

Late work will be penalized 10% each day late and will not be accepted after the 3rd day.

The grades reflect the levels of student learning. We first learn the geometric concept through **discovery** or investigation. We then **construct** a mathematical proof or conjecture for the concept. Next, we **apply** the theorem to modern geometric problems using algebra. Finally, we exhibit a **summation** of our learnings in assessments and/or projects.

## STUDENT EVALUATION: ACADEMIC DISHONESTY

Students will often assignments including assessments privately at home. Students are on their honor to abide by Scholé Academy's Learning Philosophy which assumes the personal cultivation of Student-Virtues described in the Student-Parent Handbook.

Additionally, plagiarism and the use of Math Solver websites or apps is a serious and punishable offense. Such assignments will result in a failing grade.

## THE VIRTUAL CLASSROOM:

We will be using the free online "virtual classroom" software provided by Zoom, one of the leading companies that provides such software. The virtual classroom will provide students with interactive audio, and an interactive whiteboard in which texts, diagrams, video and other media can be displayed and analyzed. We will provide students with a link (via email) that will enable students to join the virtual classroom.

We will also utilize the learning management system, Schoology where communication and assignment submission will occur. Students will submit assignments using scanning technology/apps (like ClearScan, AdobeScan, CamScanner). Submissions must be single-file pdfs.

Specific information regarding the technology used by Scholé Academy (including required technology) can be found by visiting the Technology in the Classroom section of the Stu dent Parent Handbook.