

# Geometry after PreAlgebra

MM www.xumath.org  
United States



Scan the QR code to add me as a friend.

**CONTACT:** 214-907-8310, [meimei.shengxu@gmail.com](mailto:meimei.shengxu@gmail.com),  
**webchat:** tsinghua954251

**TO REGISTER:** <https://xumath.org>

## WHEN, WHERE, HOW MUCH?

**Term:** June 12 – Aug. 14, 2026

**In-Person and Live Zoom Lecture:** Fri. 5:30-7pm CT

**In-Person and Live Zoom Homework Solving Class:** Tue. 5:30-6:30pm CT

**In-Person Address:** PolyEducation, 4116 W Spring Creek Pkwy, Suite C500, Plano, TX, 75024

### Format:

- 10 1.5-hour lectures + 10 1-hour homework solving classes
- 10 homework assignments (to be graded) + 1 exam (to be graded)
- (1) In-person and live zoom hybrid; (2) Customized lecture notes on Canvas; (3) [Videos for making up missed classes](#); (4) [Cash awards](#) for effort and performance in graded quizzes, homework and exams.

**Tuition:** \$450 (if register and pay by March 31), \$480 (after March 31)

## WHO TEACHES?

### Dr. Sheng Xu:

- Recommended by K-12 students and parents in anonymous testimonials (on <https://xumath.org>)
- Math professor at Southern Methodist University with Teaching Excellence Award; 19 years and 17 math courses teaching experience; Author of the undergraduate textbook: *Introduction To Scientific Computing with Matlab and Python Tutorials* (on [amazon.com](https://amazon.com)); Ph.D. from Cornell and post-doc at Princeton and Cornell

## COURSE INFO

**Syllabus:** <https://xumath.org>

### Required Textbooks:

- [1] Customized notes by Prof. Xu (available before each class)
- [2] Ron Larson et al., *McDougal Littell Geometry*, 10<sup>th</sup> Edition, ISBN 0-618-25022-0: fundamental homework problems from this book

# TOPICS

## **Unit 1: Basics of Geometry**

1. Introduction and Overview
2. Points, Lines, Planes, Segments, Angles
3. Measurements: Perimeter, Circumference, Areas
4. Perpendicular and Parallel Lines

## **Unit 2: Angle Chasing**

1. Vertical Angles, Linear Pairs
2. Parallel Lines and Transversals
3. Angles of Triangles and Polygons

## **Unit 3: Properties of Triangles**

1. Pythagorean theorem
2. Properties of Bisectors, Medians, Altitudes, Midsegments
3. Inequalities in Triangles
4. Special Triangles

## **Unit 4: Quadrilaterals and Polygons**

1. Parallelograms, Rhombuses, Trapezoids and Kites
2. Angles, Perimeters, Areas

## **Unit 5: Similarity**

1. Proportion and Similarity
2. Using Similarity: Length and Area
3. Similarity with Right Triangles

## **Unit 6: Circles**

1. Tangents, Arcs, Chords, Inscribed Angles, Sectors, Cyclic Quadrilaterals
2. Relationships in Circles
3. The Power of a Point
4. Circumference, Arc Length, Sector Areas

## **Unit 7: Analytical Geometry and Transformations**

1. Cartesian coordinates: Distance and Midpoint
2. Translations, Reflections and Rotations

## **Unit 8: 3D Geometry**

1. Euler's formula
2. Prisms, Cylinders, Pyramids, Cones, Spheres
3. Surface Areas and Volumes

## **Unit 9: Others**

1. Geometric Probability
2. Geometric Constructions
3. Geometric Proofs