Algebra 1 Part 2, Spring 2026

(Part 1 was offered in Fall 2025)

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

WHEN, WHERE AND HOW MUCH?

Term: Jan 17, 2026 – May 30, 2026

In-Person (at PolyEducation) and Virtual (live zoom) Lecture (Teaching by Prof. Xu, Helping by a TA for Q&A): 7-9:00pm (CT), Sat

TA Office Hours: 1.5 hours for Q&A each week, time (TBD)

Homework Solving Video: posted after homework due time

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

Format:

- 20 2-hour in-person or live zoom lectures + 20 1-hour homework solving video
- 18 homework assignments (to be graded) + 2 take-home exams (to be graded)

Note: A student can request the video of a class if the class has to be missed.

Tuition: **$940** (register by Nov 23, 2025), **$970** (register after Nov 23, 2025)

WHO TEACHES?

Dr. Sheng Xu: Associate professor of math at Southern Methodist University

- Received Ph.D. from Cornell and did post-doc at Princeton and Cornell;
- Taught 12 different undergraduate and graduate math courses at SMU in past 19 years;
- Received Betty McKnight Spears Endowed Teaching Excellence Award
- Recommended by students and parents in anonymous testimonials on https://xumath.org/testimonial/
- Published an undergraduate textbook *Introduction to Scientific Computing with Matlab and Python Tutorials*, Taylor Francis, 2022

COURSE INFO

Syllabus, Sample Notes and Videos: **https://xumath.org**

Required Textbooks:

- **[1]** Customized notes by Prof. Xu with reference to various books (available before each class)
- **[2]** Ron Larson et al., *McDougal Littell Algebra 1: Applications, Equations and Graphs*, 2001st Edition: fundamental homework problems from this book

References:

- **[3]** R. Rusczyk and M. Crawford, The art of Problem Solving (AoPS) Introduction to Algebra: optional challenging problems mainly from this book

SCHEDULE

Part 1 (Fall 2025)

Unit 1: Fundamental Concepts

1. Numbers; Arithmetic; Absolute Values
2. Variables; Laws; Expressions; Equations; Inequalities
3. Function Basics

Unit 2: Linear Equations and Inequalities

1. Solving Linear Equations and Inequalities
2. Word Problems
3. Graphing Linear Functions and Inequalities

Unit 3: Systems of Linear Equations

1. Solving Linear Systems
2. Word Problems
3. Graphing Linear Systems and Inequalities

Unit 4: Exponents

1. Laws of Exponents
2. Exponential Expressions and Equations
3. Exponential Growth and Decay

Part 2 (Spring 2026)

Unit 5: Quadratic Functions

1. Factoring Quadratic Expressions
2. Completing the Square
3. Solving Quadratic Equations
4. Parabolas

Unit 6: Polynomials and Factoring

1. Adding, Subtracting and Multiplying Polynomials
2. Factoring Polynomials
3. Special Factorization

Unit 7: Ratios, Proportion and Rational Expressions

1. Ratio, Percent, Conversion Factor, Proportion, Rates
2. Rational Expressions and Equations
3. Graphing Simple Rational Functions

Unit 8: Radicals

1. Square and Cubic Roots
2. Radical Expressions
3. Pythagorean Theorem and Distance Formula

Unit 9: Others

1. Counting
2. Probability and Statistics
3. Sequences and Series