# DSM (Dr. Shen Mathematics) Academy (Fall 2020)
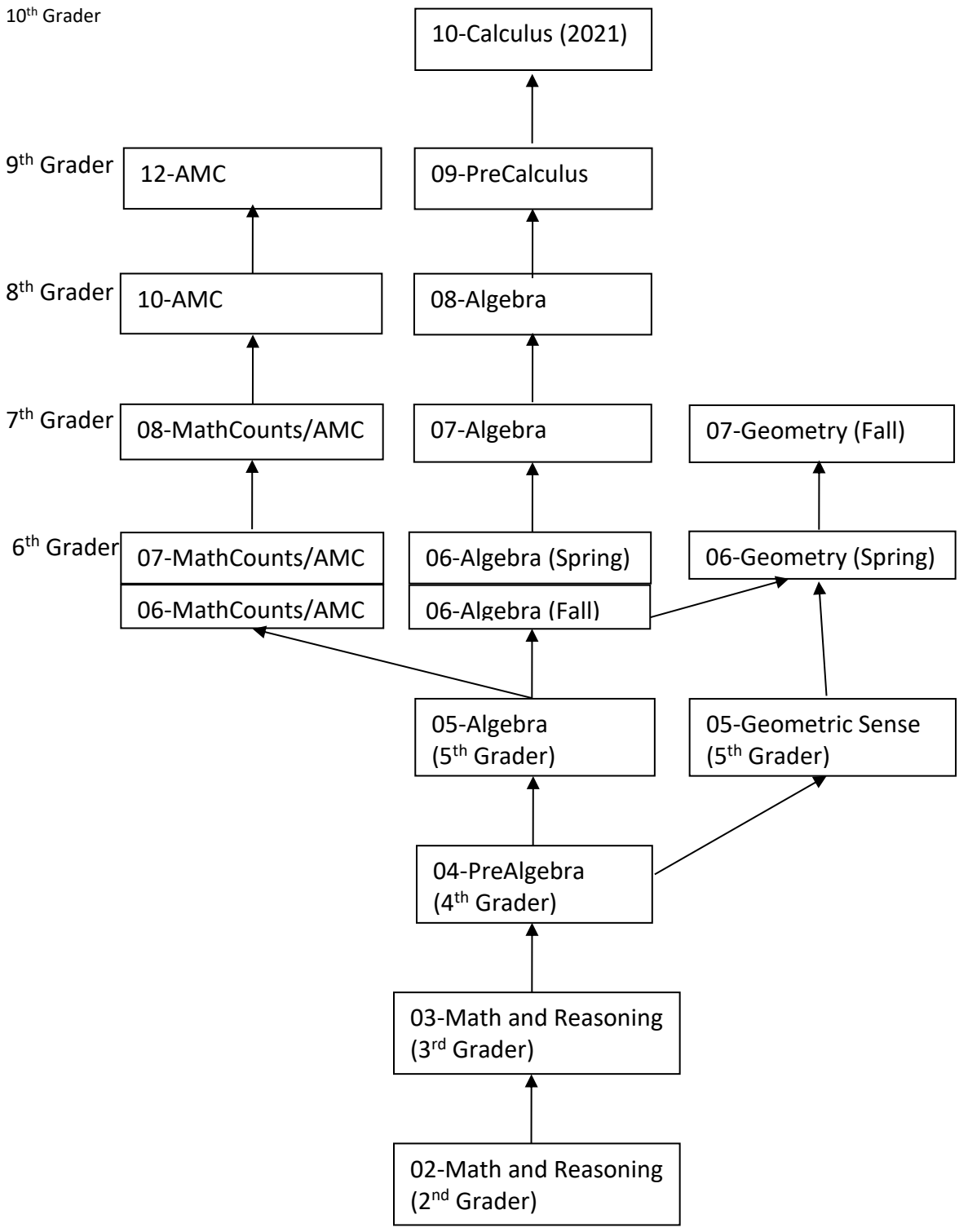
All courses will be delivered via Zoom. Lecture recording and notes will be available to students.

## DSM Course Sequence

10th Grader

| 10-Calculus (2021) |

9th Grader

| 12-AMC | | 09-PreCalculus |

8th Grader

| 10-AMC | | 08-Algebra |

7th Grader

| 08-MathCounts/AMC | | 07-Algebra | | 07-Geometry (Fall) |

6th Grader

| 07-MathCounts/AMC | | 06-Algebra (Spring) | | 06-Geometry (Spring) |
| 06-MathCounts/AMC | | 06-Algebra (Fall) | |

| 05-Algebra (5th Grader) | | 05-Geometric Sense (5th Grader) |

| 04-PreAlgebra (4th Grader) |

| 03-Math and Reasoning (3rd Grader) |

| 02-Math and Reasoning (2nd Grader) |

**Course Registration** (through Austin Great Wall Chinese School): https://agwcs.org/ -- Copy the URL link and open in a web browser.

**DSM Academy:** https://www.dsmacademy.net/

**Contact:** DSMAcademy.Shen@gmail.com, js48@txstate.edu

**Join WeChat:   jianshentx**



2-Math Study
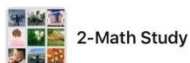
Valid until 8/12 and will update upon joining group

## After School Programs for 2nd and 3rd Graders

15 weeks (Aug 25 – December 10), 30 class meetings.
No class during the Thanksgiving Week.

| Course/ Instructor | Lecture Time | Weekly Homework | Class Size | Tuition |
|---|---|---|---|---|
| 02-Math and Reasoning (Section 1) Dr. Hungzen Liao | Tuesday and Thursday 4:00--4:50 PM (CT) 2:00--2:50 PM (PT) 5:00--5:50 PM (ET) | None | 25 | $300 (regular) *Early Bird: $270 |
| 02-Math and Reasoning (Section 2) Dr. Hungzen Liao | Tuesday and Thursday 5:00--5:50 PM (CT) 3:00--3:50 PM (PT) 6:00--6:50 PM (ET) | None | 25 | $300 (regular) *Early Bird: $270 |
| 03-Math and Reasoning (Section 1) Ms. Wei Bao | Tuesday and Thursday 3:30—4:20 PM (CT) 1:30—2:20 PM (PT) 4:30—5:20 PM (ET) | 30 minutes per week | 25 | $300 (regular) *Early Bird: $270 |
| 03-Math and Reasoning (Section 2) Ms. Zhen Wang | Wednesday and Friday 5:30—6:20 PM (CT) 3:30—4:20 PM (PT) 6:30—7:20 PM (ET) | 30 minutes per week | 25 | $300 (regular) *Early Bird: $270 |

## Sunday Mathematics Programs for 4th – 11th Graders

15 weeks (Aug 23 – December 13)
No class on Sept. 6 and Nov. 22

| Course/ Instructor | Lecture Time (Sunday) | T.A. Lab (Saturday) | Weekly Quiz (taken anytime | Weekly Homework | Class Size | Tuition |
|---|---|---|---|---|---|---|
| | | | | | | |

| | | Students are recommended (but not required) to attend T.A. labs. | after lecture and before 11:59PM) | | | |
|---|---|---|---|---|---|---|
| 04-PreAlgebra Ms. Chen Li | 1:00--1:55 PM (CT) 11:00-11:55AM (PT) 2:00—2:55 PM (ET) | None | 10-15 Minutes per week | 1-1.5 Hours per week | 40 | $300 (regular) *Early Bird: $270 |
| 05-Geometric Sense Dr. Hungzen Liao | 2:05--3:00 PM (CT) 12:05--1:00 PM (PT) 3:05-- 4:00 PM (ET) | None | None | None | 150 | $250 (regular) Free ($0) |
| 05-Algebra (Section 1) Dr. Jian Shen | 1:00--2:00 PM (CT) 11AM-12 Noon (PT) 2:00-- 3:00 PM (ET) | 6:00-6:30 PM (CT) 4:00-4:30 PM (PT) 7:00-7:30 PM (ET) | 15-20 Minutes per week | 1-2 Hours per week | 40 | $300 (regular) *Early Bird: $270 |
| 05-Algebra (Section 2) Dr. Jian Shen | 3:05--4:05 PM (CT) 1:05--2:05 PM (PT) 4:05-- 5:05 PM (ET) | 6:00-6:30 PM (CT) 4:00-4:30 PM (PT) 7:00-7:30 PM (ET) | 15-20 Minutes per week | 1-2 Hours per week | 40 | $300 (regular) *Early Bird: $270 |
| 06-Algebra Ms. Chen Li | 3:05--4:05 PM (CT) 1:05--2:05 PM (PT) 4:05-- 5:05 PM (ET) | 6:45-7:15 PM (CT) 4:45-5:15 PM (PT) 7:45-8:15 PM (ET) | 15-20 Minutes per week | 1-2 Hours per week | 40 | $300 (regular) *Early Bird: $270 |
| 07-Algebra Dr. Qiang Zhao | 3:05--4:05 PM (CT) 1:05--2:05 PM (PT) 4:05-- 5:05 PM (ET) | 6:00-6:30 PM (CT) 4:00-4:30 PM (PT) 7:00-7:30 PM (ET) | 15-20 Minutes per week | 1-2 Hours per week | 40 | $300 (regular) *Early Bird: $270 |
| 08-Algebra Dr. Hungzen Liao | 3:05--4:05 PM (CT) 1:05--2:05 PM (PT) 4:05-- 5:05 PM (ET) | 6:45-7:15 PM (CT) 4:45-5:15 PM (PT) 7:45-8:15 PM (ET) | 15-20 Minutes per week | 1-2 Hours per week | 40 | $300 (regular) *Early Bird: $270, |

| 09-Precalculus Dr. Qiang Zhao | 4:15--5:15 PM (CT) 2:15--3:15 PM (PT) 5:15-- 6:15 PM (ET) | None | 15-20 Minutes per week | 1-2 Hours per week | 40 | $300 (regular) *Early Bird: $270, |
|---|---|---|---|---|---|---|
| 07-Geometry Dr. Jian Shen | 4:15--5:25 PM (CT) 2:15--3:25 PM (PT) 5:15-- 6:25 PM (ET) | None | 15-20 Minutes per week | 1.5-2 Hours per week | 50 | $320 (regular) *Early Bird: $290 |
| 06-Mathcounts/AMC Dr. Jianbo Peng | 4:15--5:25 PM (CT) 2:15--3:25 PM (PT) 5:15-- 6:25 PM (ET) | None | None | 1.5-2 Hours per week | 40 | $400 (regular) *Early Bird: $370 |
| 08-Mathcounts/AMC Dr. Jianbo Peng | 5:30—6:45 PM (CT) 3:30--4:45 PM (PT) 6:30-- 7:45 PM (ET) | None | None | 1.5-2 Hours per week | 40 | $400 (regular) *Early Bird: $370 |
| 10-AMC Dr. Jian Shen (10-AMC and 12-AMC are stacked together as 10/12-AMC.) | 2:00--3:00 PM (CT) 12:00--1:00 PM (PT) 3:00-- 4:00 PM (ET) | None | None | 1.5-2.5 Hours per week | 40 | $400 (regular) *Early Bird: $370, |
| 12-AMC Dr. Jian Shen (10-AMC and 12-AMC are stacked together as 10/12-AMC.) | 2:00--3:00 PM (CT) 12:00--1:00 PM (PT) 3:00-- 4:00 PM (ET) | None | None | 1.5-2.5 Hours per week | 40 | $400 (regular) *Early Bird: $370, |

**Course Instructors:**
Dr. Jian Shen
- Professor and Associate Chair, Texas State U Mathematics Department
- Member of the Texas State Mathworks Summer Camp Team since 2003
- Member of the 1986 Chinese IMO Team

Dr. Jianbo Peng -- Member of the 1994 Chinese IMO Team
Dr. Qiang Zhao – Mathematics Professor at Texas State University
Ms. Chen Li **--** 15 years of teaching experience at a public middle school in Austin, TX
Dr. Hungzen Liao – 8 years of teaching experience at a private middle school in Austin, TX
Ms. Zhen Wang – 10 years of teaching experience at Austin Great Wall Chinese School
Ms. Wei Bao – 5 years of teaching experience at Austin Great Wall Chinese School

**DSM Course Description:**

**04-PreAlgebra**

This is a one-year enhancement course recommended for students in 4th grade. The course will cover the following topics: comparing integers, operations of integers (+,-,X,/), fractions, operations of fractions (+,-,X,/), solving one-step and two-step equations, divisibility rules, measurement, geometry (angle measure, perimeter and area), patterns and sequences.

**05-Algebra**

This is a one-year enhancement course recommended for students in 5th grade. The course will cover many topics taught in Texas middle schools. Topics (two semesters) include number sense, fraction, operations of fractions, equation with fractions, rounding decimals, equation with decimals, number relations, linear equation, linear inequality, mean median and mode, radical, exponent, divisibility properties, greatest common divisor, least common multiple, factorization of integers, change, percent, ratio, direct proportion, inverse proportion, markup, discount, simple interest, US customary system of measurement, metric system of measurement, scale drawing, speed-distance problems, rectangular coordinate system, point, line segment, square root of whole numbers, Pythagorean theorem, area of triangle, parallelogram, distance formula, mid-point formula, box-method. The course will also teach mental mathematics and will enhance student mental calculation skills in arithmetic. Students will spend 5 minutes in each class in practicing mental mathematics skills.

**06-Algebra**

This is a one-year enhancement course recommended for students in 6th grade. Topics (two semesters) include distance formula, mid-point formula, graph of a linear equation, equation of a line, intercepts, slope, slope-intercept formula, point-slope formula, graphing, parallel lines, perpendicular lines, system of linear equations, simple and compound interest, financial applications, population growth, linear inequality, system of linear inequalities, triangle inequality theorem, absolute value equation, absolute value inequality, polynomial, operations of polynomials, FOIL expansion, factoring a polynomial, factoring trinomials of the type $ax^2+bx+c$. Prerequisite: 05-Algebra or approved by Dr. Shen.

**07-Algebra**

This is a one-year enhancement course recommended for Students in 7th grade. Topics (two semesters) include solving complicate equations in one variable, quadratic equation, completing square, quadratic formula, discriminant, quadratic type equation, systems of linear and quadratic equations, linear inequality, quadratic inequality, polynomial inequality, integer exponent, quadratic and exponential functions, long division, synthetic division, operations of rational expressions (+,-,X,/), data analysis, least common denominator, rational function, rational equation, equation with compound rational expression, radical expressions, radical equations, rational exponent, relation between rational exponents and radicals, radical equation. Prerequisite: 06-Algebra or approved by Dr. Shen.

**08-Algebra**

This is a one-year enhancement course recommended for Students in 8th grade. Topics (two semesters) include complex number, operations of complex numbers (+,-,X,/), complex conjugate, review of linear and quadratic functions and their properties, graph transformation, polynomial function and graph, division

algorithm, remainder theorem, factor theorem, rational zeros of a polynomial function, conjugate pairs theorem, complex zeros of a polynomial function, irrational zero theorem, radical function, piecewise-defined function, vertical, horizontal, and slant asymptotes of a rational function, polynomial inequalities, rational inequalities, inverse function, exponential function, logarithmic function, equation on exponential functions, equation on logarithmic functions, Sequences, sum of an arithmetic sequence, sum of a geometric sequence. Prerequisite: 07-Algebra or approved by Dr. Shen.

## 06-Geometry, 07-Geometry

This is a one-year enhancement course for high school Geometry. Geometry is the study of points, lines, surfaces, shapes, 3-dimensional solids, and the relationships that exist between them. Topics (two semesters) include elements of plane geometry, reasoning and proofs, transforming figures, triangles and geometric constructions, congruent triangles, similar triangles, polygons, circles, three-dimensional figures, and circle theorems. Prerequisite: 06-Algebra (Fall) or approved by Dr. Shen. This course is recommended for students in 6th, 7th, 8th grades.

## 06-MathCounts/AMC, 07-Mathcounts/AMC

This is a one-year course preparing middle school students for success on MathCounts and the AMC 8 tests. Prerequisite: 05-Algebra or approved by Dr. Shen.  This course is recommended for students in 6th, 7th grades. Students are recommended to take 06-MathCounts/AMC and 06-Algebra at the same time.

## 08-MathCounts/AMC

This is a one-year advanced course preparing middle school students for success on MathCounts and the AMC 8 tests. Prerequisite: 06-MathCounts/AMC or approved by Dr. Shen.  This course is recommended for students in 7th, 8th grades. Students are recommended to take 08-MathCounts/AMC and 07-Algebra at the same time.

## 10/12-AMC (2-year course stacked for 10-AMC and 12-AMC)

This is a topic-based problem solving course preparing high school students for success on the AMC 10/12 tests. Topics covered will be different for any two consecutive years, and thus students can take the course for up to two years. Prerequisite: 08-MathCounts/AMC or approved by Dr. Shen.  This course is recommended for students in 9th, 10th grades.

## 09-PreCalculus

This is a one-year enhancement course for high school Pre-Calculus. Topics include (two semesters) overview of functions and graphs, trigonometry, trigonometric equations, identities, inverse trigonometric functions, complex numbers, exponential forms of complex numbers, De Moivre's Theorem, vectors, polar equations, parametric equations, dot and cross product, conic sections, probability, statistics and matrices.