
P R O J E C T

mEg s s s

WE PUT THE M IN STEM

2020 Summer Planning Packet

Welcome to Project MEGSSS! This packet will help you plan your summer coursework. Use the course descriptions, schedule, tuition, and financial aid information to assist you with online registration. If you need registration assistance, contact us at (314) 842-5968 or at nomination@megsss.org.

MathJam20 is offered in two-week sessions:

- **Session 1:** June 8th-19th Half day option attending via our online platform.
- **Session 2:** July 6th-17th at DeSmet from 8:30 a.m. to 3:45 p.m. Half day options are available, from 8:30 a.m. to 11:30 a.m. or 12:30 to 3:45 p.m.

Additional Summer Programs:

- **Session 1:** June 8th-19th Upper Level Elements Afternoon Summer Sessions: Number Theory, Digital Logic, and Probability
- **Session 2:** July 6th-17th Elements Summer Sessions at DeSmet from 8:30 a.m. to 3:45 p.m. Half day options are available, from 8:30 a.m. to 11:30 a.m. or 12:30 to 3:45 p.m.
- **Puzzles & Programming:** June 22nd-26th Half day option attending via our online platform.
- **Logic Bootcamp:** June 1st-5th attending via our online platform or July 28th-31st at BRDG. Morning only from 8:30 a.m. to 11:30 a.m. **Pre-requisite for Logic Bootcamp: completion of Operational Systems online course*

Before care (beginning at 7:30 a.m.) and after care (ending at 5:30 p.m.) is available for select days or for the whole session during our July sessions.

Which classes should I take?

Project MEGSSS offers courses which are designed for students who are self-motivated and desire math challenge, not students looking for remediation. Classes available for students ages 10 to 14 (by August 1st, 2020)

Course Descriptions

MathJam20 Course Offerings

Math Explorers I. (Grade 5). Introduction to Problem Solving. This course will focus on a problem-solving that introduces students to the Papyrus minicomputer, the string game, and other interactive experiences designed to develop logic abilities and critical thinking skills.

Math Explorers II. (Grade 5). The Shape of Space. This course asks students to think about two- and three-dimensional space and the shape of our universe. Students will explore topics from topology and geometry in order to understand how the shape and dimension of a universe affects its inhabitants. We will ask what the shape of our own universe is and see what that knowledge tells us.

Symmetry and Numerology in Sir Gawain & The Green Knight. (Grade 6). Students will read Sir Gawain and the Green Knight and investigate the concepts of symmetry and numerology as they relate to mathematics and literature.

Puzzles and Programming. This is a two class block. (Grade 6). Logic puzzles, virtual robotics programming, and more. This course is designed to keep kids working on logic skills, while dipping a toe into the world of real programming, using the language, Logo.

STEM Sampler. (Grade 6). Using household materials, students will complete a series of STEM challenges such as a mousetrap vehicle, water bottle rocket or catapult. While hints, help, and collaboration will be online, expect to create and test away from the computer, while meeting virtually with your classmates to collaborate and talk about ideas and solutions to problems. Supplies for all projects will be provided.

The Logic of Binary Choices: The Lady or the Tiger. (Grade 7/8). This course applies computer logic to literature analysis as students grapple with the logical implications of the Lady or the Tiger.

Math Contest Prep. (Grade 7/8). This class will develop and sharpen students' problem solving skills to the degree needed to be competitive in top math competitions such as MATHCOUNTS and the AMC 8. We will cover interesting topics - number theory, algebra, sequences and series, probability, geometry, or word problems - with an emphasis on the fundamental principles necessary for efficient problem solving.

STEM Sampler. (Grade 7/8). Using household materials, students will complete a series of STEM challenges such as a mousetrap vehicle, water bottle rocket or catapult. While hints, help, and collaboration will be online, expect to create and test away from the computer, while meeting virtually with your classmates to collaborate and talk about ideas and solutions to problems. Supplies for all projects will be provided.

Geometry: Reflecting on Symmetry. (Grade 7/8). We will examine symmetry through a series of hands-on activities and explore transformations including reflections, rotations, and translations. We will also study symmetry in art, architecture and biology.

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Upper Elements Afternoon Course Offerings

The following courses are designated for students who have qualified for and previously participated in the Elements Summer and/or After-School Program:

Introduction to Probability (EM Book 0-8)

Have you ever wondered how people predict the weather or how you can predict your winnings (or losses) in a game of chance? We will study one-, two-, and multi-stage random experiments such as tossing a coin or die, drawing different colored balls out of boxes, spinning a spinner, games of chance, the product rule, counting subsets, determining whether a toss or drawing is fair, etc. *Students need a good working knowledge of fractions or at least a good knowledge of using a calculator to do arithmetic with fractions. Homework load will be medium to light, and there will be a final.*

Introduction to Number Theory (EM Book 0-9)

Numbers can be fascinating. This course will investigate some of the most intriguing and timeless questions in the field of number theory. We'll learn about prime and composite numbers, factoring, number bases other than

ten, and will examine elegant ideas such as the Sieve of Eratosthenes and the Fundamental Theorem of Arithmetic. *Homework load will be medium to light; there will be a final.*

Advanced Digital Logic, 3 Hours

Pre-requisite: Operational Systems (Book 0-1) and at least Chapter 2 of Logic Book 1 Digital circuits are found in watches, calculators, video games, computers, and thousands of other devices. Smart circuits are present in virtually all aspects of our lives, and their presence is increasing rapidly, making digital electronics an important area of study for a prospective career in engineering. Students will study the applications of electronic logic circuits and apply Boolean logic to the solution of problems. They will learn about the basics of digital electronics, number systems, logic gates, Boolean algebra, circuit design, flipflops, counters, & state machines. *There will be homework, but no final exam.*

Registration and Payment

When should I register?

Registrations for June must be completed by May 26th, 2020. Registrations for July must be completed by June 26th, 2020. A \$15 late fee will apply after that date.

Unless you have applied for financial aid, your seat can only be held once full payment is received. When applying for financial aid (this does not include students applying through the educator-directed scholarship program), you must pay a refundable \$25 fee to hold your seat. This payment will be refunded if financial accommodations offered are insufficient to meet your needs.

For more information on financial aid, see below. Payment may be made online during online registration. Late registration fees apply after the above dates. Fifty percent of tuition payments are refundable if a withdrawal form is submitted online before May 15th, 2020. After that, there are no refunds for summer tuition unless a course is cancelled. If a course is not large enough to justify the class, we will contact you on or before May 29th, 2020 to reschedule or to arrange a refund.

Payment may be made via PayPal during registration. Late registration fees apply after the above dates. If a session is not large enough to justify a class, we will contact you to reschedule.

MathJam20 Tuition

Session 1 or 2, Full Day	\$610
Half Day	\$355

Elements Summer Tuition

Session 1 or 2, Full Day	\$610
Half Day	\$355

Puzzles & Programming Tuition \$178

Logic Bootcamp Tuition \$255

* Additional Items: Late registrations, \$15 (after May 26th or June 26th deadlines)

Financial Aid Options

We offer two financial aid programs, and we encourage applications before the deadline of May 15th for June registrations and June 15th for July registrations. Decisions will be made prior to May 15th for June registrations and prior to June 15th for July registrations. All applicants must have registered for courses, or the application will be denied.

1. Families who are eligible for federal lunch programs are eligible for our educator-directed scholarship that streamlines the application process. In 2020, students in districts where all receive federal lunch programs must also meet an income test and provide income verification. Please inquire at nomination@megsss.org
2. For all others, financial aid applications are accepted online. Submission of the most recent federal tax return is required for this process.

Refunds

June registrations can be fully refunded, applied to July registration, or applied to the half-day online courses, with the option to have any difference refunded, donated to MEGSSS, or applied to future programming. July registrations can be held until Project MEGSSS can confirm whether we can offer in-person or online camps; once confirmed, refunds are either not necessary or issued as above for June.