Math Summer Programs 2025 Brief

BCAMT Leadership 2023-2024
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Key Principles

Prestige means very little

People get TOO obsessed with “what *tier* summer program am i going to? How selective is this? Will colleges think I'm cool if I go to _?” In reality, it matters WAY less the prestige of the program and more so about WHAT YOU DO during the summer. No math program will teach you disproportionately more math than the time allotted (if learning lots of math is your *only* goal, you’ll probably do it faster with self study).

It doesn’t matter what math you do, it matters *how* you do it and *who* you do it with. The best part about math programs is the collaborative and intensive environment. Colleges care about how you can *testify* to your experiences during your summer, not just the name. (Re: something called college supplementals!) The onus is on YOU to benefit from these programs once you get there—to push yourself and truly indulge in the beauty of math. For any of the programs on this list, you’ll be able to do that in the same capacity.

Share and seek out opportunities

Don't be a gatekeeper. Everyone should be aware of the opportunities that are out there. Don’t hold back information from people you view as ‘competition’—just having the knowledge of an opportunity doesn’t make you more deserving than other qualified individuals. Do your best, but don’t hold down others in the process. If you know friends that would delight in a summer math program experience, share the opportunities you have learned with them.

At the same time, there is no guarantee for others to seek *you* out to tell you opportunities. If you want to find amazing programs or experiences, you can often stumble upon them with a few google searches. Simply looking up “high school [subject] programs” or “[subject] summer experiences” or “how to do [task] as a highschooler” can alter your trajectory significantly.

FOR GIRLS/NONBINARY STUDENTS: There are a couple of programs such as the G2 Math Program at MIT (description below). In general, look out for opportunities where you can *meet more girls/nb in math*—other keywords to look into are Math Prize for Girls, EGMO, etc.

Space things out, get organized

You have months to do this and you CANNOT fully solve these problem sets in an all nighter.

You will *probably* use LaTeX documents to have things backed up and organized so that you don’t lose any progress or submit an earlier draft. Learning and using LaTeX (basic guide here)

is probably your best option, but you could also handwrite on an iPad, or paper (not super advised, scanning is annoying). You can't show your problem sets to other people, so you must keep yourself organized while revising your work.

Show your thinking and have fun on responses

Krish: "I asked HCSSiM Admissions why I got in. The director messaged (word for word)

> "I think that for your application in particular, it was a willingness to play around and explore the problems — even when you didn't have a solution, you had a lot of thoughts about how you would approach it, you gave a lot of insight and reasoning, and you clearly enjoyed the process of actively thinking about the [problem set]. That's all stuff that's a lot more likely to lead to someone having a successful summer with us than *just memorizing textbook proofs already*.
>
> Also your [essay] was good — like it felt like you had learned about what might make our program different than others and had thought about what you wanted in a summer math experience.
>
> This is the most important part of the comment I made on your app for internal review: "In general he has a lot of interesting conjectures that are incorrect or unfinished, but despite that, I find the way he thinks about math compelling and interesting, and it feels like he really tried to play with the IT in the amount of time he gave himself.""

DON'T take the above as the TEMPLATE to get into MATH PROGRAMS (or even a template to get into specifically HCSSiM). I'm sharing this information because it shows being *curious* and truly *enjoying and exploring math* means a lot for admissions—sometimes more so than correctness or experience.

The younger you are, the more you should apply

Some camps give a boost to applicants who have applied in previous years. You'll have MUCH less time to apply to programs as you move up in grades. You'll gain experience in mathematical communication, essay writing, and LaTeXing that will help you next year.

There is (almost) ALWAYS a reason to apply. It (almost) ALWAYS pays off.

The aspect of spending HOURS writing essays and typing up solutions can seem a little scary to be faced with the same rejection letter—you might wonder if all of those extra hours you spent were worth it (compared to someone who received the same letter and submitted a nearly blank PSET). But, it will pay off. It will pay off in work ethic. If you'd like to major in math in college (or any math/science related field), the time spent thinking about problems and reflecting on math to write essays could still be useful. So trust the process—even if it doesn't end ideally, you will have gained from it.

Canada/USA Mathcamp (DUE 02/26/25)

Vibe: You get a lot of choice in the math you do - almost everything is optional. VERY friendly and chill culture - lots of student-run and staff-run activities - but of course it also offers rigorous math opportunities (competition/higher math classes, weekly team proof contests, even research-ish “projects”).
Application Materials:

- Qualifying Quiz (which is the hardest out of all program problem sets, full solving really sets you apart)
- Essay
- ‘Reference’ (this year it's different, i believe you just put down a persons email who can testify to your abilities)
- Math background

BCA Connection:

- Jeremy Lee ‘25
    - “At Mathcamp, you have a lot of freedom to learn and do whatever you want! In terms of math classes, there is a huge variety of classes each week for people of all levels of experience, and you are very much encouraged to try new things! Outside of class though, I also had a lot of fun experiences through weekly field trips (which included ice skating and a trip to Seattle!) as well as events on the schedule-board, which is a place that is always filled with posters that anyone can put up about an event they are running! There was basically always something going on, whether it was outside or in one of the lounges, and you could always find people to talk to and play games with! Also, since nearly half of the campers at Mathcamp are returners, there is a very strong sense of community through traditions and stories being passed on from year to year which I thought was quite cool!”
- Marvin Mao ‘25
- Alicia Zhang ‘22
- Autumn Shin ‘22

Ross (DUE 03/15/25)

Vibe: very rigorous and sleep deprived. You study number theory from the axioms and every problem set must be fully completed before moving on. Second year students can become junior counselors.
Application Materials:

- LOTS of essays including math background
- Problem Set (few problems with many parts)
- Recommendation(s)
- Transcript (grades matter here!)

BCA Connection:

- Michael Pylypovich ‘27
- Anthony Kim ‘25

    - “I agree with what Justin said below me, but an additional good tip is that Ross really looks for how you think, so it could be good to come up with various solutions or generalizations for the problems. There’s a lot you can do with the problems or concepts that aren't directly asked for in their prompts. Leave nothing blank, any partial solutions or just brainstorming of possible approaches or ideas will help your application!”
- Justin Zhang ‘24
    - Getting admitted: “In terms of getting in, I think the essays were the most important part of my application. Unlike other math camps, Ross has a LOT of essays. If you really show your passion in these essays, it can really help bolster your application. One question that Ross asks about is previous math projects, which throws some people off: if you haven’t done any research, you can talk about a time that you explored math on your own or something in that vein. Either way, don’t leave any essay questions blank, and just try to be passionate!”
    - The actual program itself: “Like a lot of other math programs, Ross is really what you make of it. While there are many students who grind problem sets late into the night and barely get any sleep, you don’t have to be; you can progress at your own pace. I really enjoyed this type of flexibility of Ross, and when people say math is a very small part of Ross it’s true: from games of ultimate frisbee to marshmallow campfires, it's a really fun community experience as well.”
- Maia Walzer ‘23
- Nikhil Mudumbi ‘23

PROMYS (DUE 03/03/25)

Vibe: a happier ross. Still axiomatic number theory, but psets given the previous day are turned in before morning lecture. More recreation/boston activities AND research opportunities for second years. First year students can “research” in exploration labs.
Application Materials:

- Math background and essay
- Problem Set (many shorter problems, they want to see your work — not just a solution)
- Recommendation(s)
- Transcript (grades matter here!)

BCA Connection:

- Jonathan Pinyan ‘03 (BCA Math Team Coach) - 2x alumni
- Daniel Gilman ‘25
- Andrea Chen ‘25 - 2x alumni
    - “Joy talked about first-year PROMYS, so I’ll talk about my returning student experience! In your second year, you’ll get to choose advanced seminars—much more refreshing than just NT—and whether to join a research lab. Although the advanced seminar psets are more difficult than NT ones, they’re quite manageable, especially in the beginning, because you usually don’t get them daily. I honestly enjoyed my second year more, mostly because of the research labs. A professor proposes your project and usually provides guiding questions

for you to work through. You're mentored by a counselor and sometimes the professor, depending on how involved they want to be. It was super cool getting to think about an unsolved problem for so long! Lastly, the PROMYS community is so fun and supportive—I've spent many late nights in the MPR room chatting with counselors and students alike about math, life, cards, etc. Apply apply!"

- Joy Ren '24
    - "In terms of math, PROMYS opened me to so many new fields and a much deeper understanding of number theory. My favorite part was the first-year exploration labs. We were given a topic (mine was fractional linear transformations which is super cool) and a few warm-up questions. With the guidance of our mentor, my teammates and I explored the questions by ourselves without online resources. The point is to collaborate and really challenge ourselves to discover/question/combine our ideas, which led to many interesting ideas and new perspectives. The mini-lectures are also a fun, stress-free way to learn so many cool topics such as linguistics or the Poincaré hyperbolic disk. Outside of math, Boston made it really easy to go to restaurants (I recommend Noodle Street) and bike around. I remember the weekend of biking to Cambridge and Newbury Street with my friends, enjoying the amazing food at Hmart and biking back in the rain. Last note — if you enjoy running, there's always a few people who run together by the Charles River in the morning!"
- Jaiden Shin '23

SUMaC (DUE 2/3/25)

Vibe: exploration of DIFFERENT topics each year (check what session you are doing). Is virtual but also recently included a residential.
Application Materials (their portal is some official stanford youth programs thing):

- Math background and essay
- VIDEO essay (optional)
- Problem Set
- Recommendation(s)
- Transcript (grades matter here!)

Hampshire College Summer Studies in Mathematics (HCSSiM) (rolling-ish)

Vibe: super quirky (quasi-cult). Large survey of topics. All terminology is created by students and all math is discovered by students. HUGE history and will teach why yellow pigs and seventeen
Application Materials:

- Quirky essay
- Interesting Test (where mathematical concepts are presented and YOU basically make the questions)
- Sponsor (Recommendation)

BCA Connection:

- Mohammed Zariwala '26

- Jeremy Lee ‘25
    - “Krish probably put it better than I could, but HCSSiM was a really fun and insightful experience for me as well! One thing I’d like to add is that halfway through and at the end of the program, we were asked to do a bit of introspection and reflect on what we’d learned, what we had done, and how we had grown as people, something which I quite liked doing. HCSSiM exposed me to all sorts of neat areas of math in an environment where everyone was supportive of one another and were all just as invested in exploring as I was. Being able to just do math for the sake of math was something I liked a lot and was a nice change of pace from the pressure and stress that can come with trying to do stuff during the school year. Also there are tennis courts!”
- Andrea Chen ‘25
- Krish Ramkumar ‘24
    - "HCSSiM was the best 6 weeks EVER. I got to explore the math that I was dying to know: what infinity really is, how to make a 17-gon, and how to put pigs in holes. I had the opportunity to survey over 289 areas of math during ‘quasis’ (informal presentations from students or staff), prime time talks (more formal presentations from staff or visitors), and random questions I bothered the adults with during meals. I also got to explore math deeply during problem sessions and workshops, sometimes taking hours to make progress on a single problem. I will never forget the people I have met at HCSSiM, mainly because I’m still in contact with them! Both classmates and staff are people that I have genuinely come to love and appreciate, and I have sent snail mail (yes, in 2024) to keep a physical connection to those who are states or countries away.”
- Lance Bae ‘23
- Jaiden Shin ‘23
- Dr. Abramson!
    - Krish: The director of admissions knows Dr. Abramson personally because he’s sent so many kids to the program (which may give that reference letter a bit more weight).
- Mr. Askins!
- Mr. Plotnick!

{MathILy, MathILy-er} (due 04/29/25)

Vibe: Hampshire’s cousin. Quirky but a bit more structured and guided in your studies. Note that you apply to the set and get accepted to one (Er means earliers, for younger students who typically haven’t taken calculus)
Application Materials:

- Short form
- Recommendation
- Not-as-short Form (essay)
- EAR (exam assessing readiness)

BCA Connection:

- Shalin Patel ‘19

Texas State Mathworks Honors Summer Math Camp (due 04/15/25)

Vibe: do research projects. Survey different areas of math. BCA kids don't typically go
Application Materials:

- Essay
- Transcript
- Teacher Rec
    - NOTICE there is NO problem set. They also do 'three different deadlines' (February 15) so maximize your chances and get it in by the first

AwesomeMath

Vibe: get MUCH better at comp math. Complete agency over what you learn and very self motivated. Staying virtual. Pretty expensive and is not very selective. They have multiple deadlines and rounds (look it up)
Application Materials:

- Admissions Test (if you make olympiad you get auto admit)
- Teacher Rec AND Mentor rec

BCA Connection:

- Justin Zhang '24
- Joy Ren '24
- Krish Ramkumar '24
    - "if you do EVERY problem and really make good structures to review your notes then you will gain alot from this program. The best part of the program is the WEALTH of problems they give you and the constant TA access"
- Sameer Pai '19

Rutgers Young Scholars Program in Discrete Mathematics (RYSP)

Vibe: do discrete math with Rutgers faculty. Not *too* selective and close to home! First come first serve rolling admissions. You are also next to a TOP Research Experience for Undergraduates (DIMACS) and may benefit from that
Application Materials:

- Problem set (15 problems which are mainly easy besides last few)

BCA Connection:

- Eshaan Saxena '23

Michigan Math and Science Scholars (MMSS) (rolling, apps open)

Vibe: lots of choices of science and (appliedish) math courses. Get to use some of UMich's facilities. Has different sessions
Application Materials:

- Online Registration & Application Form
- Letter of Recommendation
- Student Personal Statement
- High School Transcript

    - No problem set! Might benefit from having some interests in science or science background

PZMC Number Theory Camp (DUE 04/25/25)

Vibe: Short and sweet (ten days!) number theory camp. Get to see a lot of cool things at Williams College
Application Materials:

- Application Form
- PZMC Challenge Questions (not the worst)
- Cover Letter (Personal Statement)
- High School Transcript (unofficial is fine) and any available standardized test scores
- 2 Recommendations (to be submitted directly by recommenders): 1 Personal & 1 Academic

BCA Connection:

- Anthony Kim '25
    - "i like their cookies"
    - "Only real complaint is that it's just 10 days, otherwise pretty fun, everyone's very close (you get to hang out with the professor and his son which was kind of funny). Lots of fun things everyday like scavenger hunts or ordering Chinese food or other stuff. I also went a day early so I got really close with the other early people and I still talk to them. In terms of math, it's extremely collaborative, with dedicated time chunks for working with others, and the staff are really approachable too."

G2 Math Program at MIT (apps not open yet)

Vibe: for female/nonbinary students interested in learning olympiad math. ~2 weeks, completely *free* program. Staff are successful olympiad alumni, so you'll be well inspired and trained there. Also it's at MIT: lots of exciting activities and Boston is super fun!
Application Materials:

- Information form
- Solutions to Admissions Quiz
- Very rarely, an interview

SPARC/ESPR Programs

Others

- NYU CMT, SWiM, Idea Math, SAMS @ CMU (LOOK THESE UP!!)
- In general, look things up. Looking up a few keywords can expose you to a whole host of math opportunities that could be very enriching
- Other (not necessarily summer) math opportunities to look up:

PRIMES-USA, National Museums of Mathematics Integrators Volunteer Program (in NYC), Steven H. Strogatz Prize for Math Communication (contest due in April), NYC Math Circle

Closing Remarks

Your summers are a valuable time to make movement in things that matter to you. Good summers frame good school years!