



MATHEMATICAL STAIRCASE, INC.

Mathematical Staircase, Inc. 2022 Annual Summary Report

In 2022, the Mathematical Staircase Inc. Board met four times electronically (over Google Hangouts and Zoom) and took three actions by written consent. We made a report on progress toward diversity objectives, reviewed and updated our compensation arrangements for both employees and contractors, reviewed our policies and bylaws to determine that no substantive changes are needed, updated our Policy on Participant Support in MathILy-EST, and reviewed to verify that our expenditures of Federal grant funds comply with federal regulations. We joined the Mathematical Association of America as a departmental member, and decided to run a second pilot of a fall-term online class for Mathematical Staircase, Inc. program alumns.

The NSF continued support for MathILy-EST 2022–24 and in February 2022 awarded \$312,263 for NSF DMS-2149647. We filed a no-cost extension for NSF DMS-1851842 and continued using those funds for travel for participants in MathILy-EST 2020–21 and for general support of participants in MathILy-EST 2022.

Mathematical Staircase Inc. was awarded \$6,000 for MathILy financial aid and \$3,000 for MathILy-Er financial aid from the American Mathematical Society Epsilon Fund in March 2022.

We were offered, and subsequently negotiated some terms of, financial support for 2023 {MathILy, MathILy-Er} financial aid and mathematical visitors from Jane Street Capital. This support is currently pending.

The MathILy and MathILy-Er Directors each submitted a grant proposal to the American Mathematical Society Epsilon Fund in December 2022.

2022 Roundtable: Madison and sarah-marie attended the second Summer Programs Roundtable (SPR) for selected mathematics and science summer programs; the conference focused on returning to in-person operations during a pandemic, on increasing diversity, equity, inclusion, and justice (JEDI) at our programs, and on future cross-program collaborations. Unsurprisingly from our previous SPR, we found that {MathILy, MathILy-Er, MathILy-EST} were better prepared for pandemic in-person operations than many other programs, and that we are in the same JEDI boat as many other programs. Perhaps the most significant outcome is that sarah-marie is now part of a small group of summer program directors who are creating an organization that will formalize various multi-program initiatives; this should launch in early 2023. Stay tuned.

Mathematical Staircase, Inc. Board of Directors

dr. sarah-marie belcastro, President and Chair of the Board

Dr. Hannah Alpert, Clerk and Secretary of the Board

Joan M. Belcastro, Treasurer

Dr. Emily Peters

Dr. Joshua Greene

Biographies of directors are posted on the Mathematical Staircase, Inc. website.

Mathematical Staircase, Inc. Mission Statement

Our mission is to educate mathematically talented secondary and tertiary students, particularly those who lack sufficient educational, financial, or social resources in their homes or schools to realize their potential. We believe in training program participants in mathematical thinking and writing, in mentoring program

participants in their ongoing educational and career paths, and in training program instructors in discovery- and inquiry-based pedagogy.

Status of Mathematical Staircase, Inc. Projects

Currently Mathematical Staircase, Inc. has three projects:

- (1) MathILy, short for "serious Mathematics Infused with Levity," is an intensive residential summer program for mathematically gifted high-school students. MathILy ran in person at Bryn Mawr College with 44 students in 2022, with substantial infection-control precautions because of the ongoing global pandemic. A 5-page report on MathILy 2022 is available on the Mathematical Staircase, Inc. website. ([link](#)) In Fall 2021 we piloted a Fall Branch Class (FaBraC) with 6 participants, all MathILy alumns from years 2016–2021. It was successful and lots of fun. In Fall 2022 we ran a FaBraC with 8 participants, all MathILy alumns from 2016, 2021, and 2022. It was again successful and fun-filled.
- (2) MathILy-Er, short for "MathILy, Earlier," is similar to MathILy, but is adapted for students who are slightly earlier in their chronology or mathematical development. MathILy-Er ran in person at Cabrini University with 31 students in 2022, with substantial infection-control precautions because of the ongoing global pandemic. A 5-page report on MathILy-Er 2022 is available on the Mathematical Staircase, Inc. website. ([link](#))
- (3) MathILy-EST, short for "MathILy Early Scholarly Training," is a Research Experience for Undergraduates focused on beginning college students. MathILy-EST ran in person at Bryn Mawr College with 10 students in 2022, with substantial infection-control precautions because of the ongoing global pandemic. A 5-page report on MathILy-EST 2022 is available on the Mathematical Staircase, Inc. website. ([link](#))

Financial Summary for 2022

Income:

Donations \$14,385.80
Grants–Restricted \$129,099.37
MathILy student fees \$196,260.22
MathILy-Er student fees \$147,829.54
FaBraC student fees \$7,298.68

Expenses:

Administrative Expenses \$1,638.66
Insurance (includes {MathILy, MathILy-Er, MathILy-EST}) \$5,021
MathILy (non-wage) Expenses \$180,330.19
MathILy-Er (non-wage) Expenses \$101,447.42
MathILy-EST (non-wage) Expenses \$45,274.94
FaBraC (non-wage) Expenses \$64.97
Wage-related Expenses (staff wages, student stipends, and payroll expenses) \$187,482.57

Income – Expenses = \$494,873.61 – \$521,259.75 = -\$26386.14

This summary report is prepared as per the Mathematical Staircase Inc. Reporting and Review Policy and posted on the Mathematical Staircase, Inc. website.