Simons Laufer Mathematical Sciences Institute
(SLMath)

Mathematically Advancing Young Undergraduates Program
(MAY-UP)

2023 MAY-UP

Applied Numerical Linear Algebra

Final Project Presentations

Saturday, May 27, 10:30 am – 1 pm
Georgia State University
Urban Life Center, Room 202
Mathematically Advancing Young Undergraduates Program (MAY-UP)

MAY-UP is a special intensive two-week residential program crafted to advance the development of early college students who demonstrate interest in and talent for mathematics.

MAY-UP is an initiative of the Simons Laufer Mathematical Sciences Institute, SLMath, in Berkeley, California, that we are piloting this May 14-28, 2023, in Atlanta. We have 12 young undergraduates (10 just finished their freshman year, 2 the sophomore year), 4 each from Clark Atlanta University, Morehouse College, and Spelman College. They are in residence at Georgia State University for the two weeks under the leadership of Dr. Shelby Wilson of the Johns Hopkins University Applied Physics Laboratory, who is leading an intensive scholarly program in Applied Numerical Linear Algebra, assisted by three teaching assistants—two young graduate students (with A.U. Center undergraduate roots) and one advanced undergraduate. The students are learning mathematics that is mostly new to them, and they learn to use computational tools (specifically Python) to approach and solve problems. They also gain access to a network of Black mathematicians who expose them through panels and presentations to short-term and long-term possibilities in mathematics.

One more thing about the students. Some are mathematics majors, some are not (“… yet!” we add with wink and a smile). The idea is to take students, primarily freshmen, whose professors identify them as demonstrating standout proficiency and pleasure in mathematics. For the ones who are majors, we provide a very good mathematical experience towards their development; for the non-majors, we do the same, and perhaps—through the two-week program and possibly some follow-up experiences—we will win some to our fine major. Imagine the conversation, “They told me I should be an engineer.” “That’s a possibility, but you can also be a mathematician!”

SLMath MAY-UP is coordinated at present by an experienced team of four directors—Drs. Duane Cooper of Morehouse College, Lakeshia Legette Jones of Clark Atlanta University, Monica Stephens of Spelman College, and Shelby Wilson of the Johns Hopkins University Applied Physics Laboratory—who collaborate ongoingly and who will rotate direct leadership of the program as it unfolds. The program is supported by the leadership and staff of SLMath.

This very first MAY-UP in 2023 is a pilot offering that we will examine very carefully as we move forward with goals of securing funding and increasing in size and scope during months of May to come.
MAY-UP Final Presentations
*Applied Numerical Linear Algebra*

Schedule of Presentations (*all times are Eastern*)

10:30 am  
**Greetings and Welcome**  
Duane Cooper and Shelby Wilson

10:35 am  
**Obesity: The Silent Killer of the 21st Century**  
Peyton Brokemond and Anaiah Jones

11 am  
**Mathematicians: Not All Heroes Wear Capes**  
Abdul Kamara and Benjamin Moore

11:25 am  
**3D Projection in Everyday Life**  
Makayla Moore and Laura Prince

11:50 am  
**The Growth of Diabetes: Least Squares of Lines of Best Fit**  
Niya McWhirter-Hall and Tai Thomas

12:15 pm  
**Unleashing Potential: Analyzing High School Graduation Rates and Shaping a Brighter Future**  
Devyn Hardwick and Myles Tucker

12:40 pm  
**Machine Learning: An Introduction**  
Ethan McGauthiar and Yamir Richmond
2023 SLMath MAY-UP Staff

Duane Cooper, Morehouse College
  Lead Director

Shelby Wilson, Johns Hopkins University Applied Physics Laboratory
  Leader of the Scholarly Program

Nicholas Arosemena, Brown University
  Teaching and Residential Assistant

Jazmin Jones, Howard University
  Teaching and Residential Assistant

Ciera Sherrill, Spelman College
  Teaching and Residential Assistant

Chatanya Tucker, Emory University
  Administrative Assistant

MAY-UP Directors

Duane Cooper, Morehouse College
  Lakeshia Legette Jones, Clark Atlanta University
  Monica Stephens, Spelman College
  Shelby Wilson, Johns Hopkins University Applied Physics Laboratory

MAY-UP Thanks:

The Simons Laufer Mathematical Sciences Institute, especially:
  Tatiana Toro, Director
  Hélène Barcelo, Deputy Director

Georgia State University, especially:
  Donata Davis, Conference & Program Services Coordinator
  Christopher Jett, Associate Professor of Mathematics Education