

Elsa S. Frankel

106 Central St, Wellesley, MA 02481 ★ 508-988-0814 ★ ef110@wellesley.edu

INTERESTS

My research interests currently include graph theory, number theory and algebra. However, as an early undergraduate I am curious to learn more about any branch of mathematics within my current skill set.

EDUCATION

Bachelor of Science Dept. of Mathematics & Computer Science Wellesley College, Wellesley MA	September 2023 - Present GPA: FY - (<i>pass/fail</i>)
High School Diploma the Williston Northampton School, Easthampton MA	September 2019 - May 2023 GPA: 4.0

RELEVANT COURSEWORK

Honors Discrete Mathematics	the Williston Northampton School
Linear Algebra	Wellesley College
Combinatorics and Graph Theory	Wellesley College
Number Theory	Wellesley College
Abstract Algebra	Wellesley College
Multivariable Calculus	Wellesley College
Introduction to Python	the Williston Northampton School
AP Computer Science A	the Williston Northampton School
Computer Programming and Problem Solving	Wellesley College
Data Structures	Wellesley College

PROJECTS

Matrix Analysis Research - (*Supervised by Professor John Urschel at MIT*)

I have recently begun work on an open conjecture in matrix analysis with Professor John Urschel as a first undergraduate research opportunity, with hopes of creating work ready for publishing.

Infinite-Dimensional Vector Spaces - (*Linear Algebra Final Project*)

In collaboration with two of my colleagues in the course, I investigated how to define the existence of a basis in an infinite-dimensional space. My work primarily concerned Bessel's functions.

Diffie-Hellman Key Exchange Lecture - (*Discrete Math Trimester 2 Final 2023*)

I created a 40 minute interactive mini-lecture introducing the Diffie-Hellman key exchange and key concepts of primitive roots modulo-n and Euler's totient function. The lecture also included detailed slides and a worksheet formatted using LaTeX.

TikTok - Mathematics Content (*independent, ongoing*)

During my senior year of high school, I began documenting my mathematical journey on my personal TikTok page, talking primarily about my love for the unit circle and experiences in my discrete mathematics course. As of February 2024, the account has 18.4K followers who I'm inspired by every day.

ADDITIONAL SKILLS

LaTeX Typesetting

I have a strong knowledge of basic tables, equation formatting, and general text formatting. I also have intermediate experience with the TikZ graphics package.

ACHIEVEMENTS/AWARDS

The L. G. Treadway Citizenship Prize - *the Williston Northampton School*

The prize awarded to a senior who has been at the school for at least two years, who has maintained a strong scholastic standing, and who has given promise of future achievement. The chief qualities to be considered are personal integrity and contributions made to the best citizenship of the school.