

Asia Morgenstern

(she/her)

TEACHING ASSISTANT

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Education

Ph.D. in Mathematics

UNIVERSITY OF KENTUCKY

Lexington, KY

August 2025 – 2030 (Expected)

B.S. in Computer Science & Mathematics, Minor in Physics

WESTMINSTER COLLEGE

New Wilmington, PA

August 2021 – May 2025

- Graduated *Summa Cum Laude*
- **GPA:** 3.919 / 4.000
- **Activities:** Kappa Mu Epsilon Mathematics Honors Society, Society of Physics Students, Pi Sigma Pi Honors Society, Math Club
- **Leadership Positions:** Society of Physics Students President

Introduction to Web Accessibility 🔗

W3C/EDX

Issued March 2022

Work Experience

Teaching Assistant

UNIVERSITY OF KENTUCKY MATHEMATICS DEPARTMENT

Lexington, KY

August 2025 – Present

Student Web Developer

WESTMINSTER COLLEGE ITS DEPARTMENT

New Wilmington, PA

February 2022 – April 2025

- Maintained and updated the college website, documenting all changes made
- Ensured all pages meet W3C accessibility guidelines (WCAG 2) and updated those that did not

Mathematics Tutor

FREELANCE

New Wilmington, PA

January 2022

- Tutored a high school student in Algebra II, geometry, statistics, probability, and pre-calculus
- Assisted with preparation for the ACCUPLACER, a college placement exam

Office Intern

CENTRAL HEATING & COOLING, LLC

New Castle, PA

June 2021 – August 2021

- Assisted Sales Department with the registration of residential and commercial HVAC equipment
- Completed miscellaneous tasks for Accounts Receivable and Accounts Payable Departments

Research Experience

Graph Coloring Game Capstone Research Project

WESTMINSTER COLLEGE | ADVISED BY NATACHA FONTES-MERZ

Python

March 2024 – April 2025

- Introduced a variation on the graph coloring game which uses harmonious colorings instead of proper colorings
- Currently writing a paper for publication

Counting Prime Juggling Patterns

IOWA STATE UNIVERSITY | ADVISED BY STEVE BUTLER

Sage

June 2024 – July 2024

- Explored prime juggling patterns for various juggling techniques, including standard 3 ball, 2 ball multiplex, 2 ball passing, etc.
- Currently writing a paper for publication
- **Collaborators:** Steve Butler, Vera Choi, Joel Jeffries, Nina McCambridge, Samuel Orellana Mateo

The Motion of Soap Film Bubbles & The Dynamic Viscosity of Air

WESTMINSTER COLLEGE | ADVISED BY CRAIG CAYLOR

LoggerPro

September 2022 – December 2022

- Replicated a previous experiment, which was designed for undergraduate physics students
- Analyzed how a soap film bubble moves in the funnel's cone with varied tubing lengths
- Employed statistical measures to calculate error and acceptability of data

Leaky Power Domination in Graphs

WESTMINSTER COLLEGE | ADVISED BY ADAM BLUMENTHAL

June 2022 – August 2022

- Researched the concept of leaky power domination in graphs, an extension of power domination
- Currently writing a paper for publication

Projects

Scrabble AI Capstone Project

Java, Swing

WESTMINSTER COLLEGE | ADVISED BY JOHN BONOMO

August 2024 – April 2025

- Designed a Scrabble interface for 2 players
- Wrote AI agents using different strategies to play Scrabble against a human player or another AI agent
- **Collaborators:** Steel Boyer, Elizabeth Walters

Root Finding with Genetic Algorithms 🦋

Python

WESTMINSTER COLLEGE | ADVISED BY MATTEO LUISI

October 2023 – April 2024

- Implemented a genetic algorithm to be used to calculate roots of equations

Westminster College Academics Webpage Updates 🦋

HTML, CSS, Bootstrap, WCAG 2

WESTMINSTER COLLEGE

May 2022 – July 2023

- Brainstormed potential website designs and structures
- Updated new and existing pages to the new design format
- Ensured that all pages were compliant with WCAG 2 guidelines

Church Directory Database

SQL, Microsoft Access

WESTMINSTER COLLEGE

January 2023 – May 2023

- Designed and implemented a database for a local church for use as a directory and record of involvement in events
- Worked in direct collaboration with a classmate

Presentations

Graph Coloring Game, Oral Presentation

UNDERGRADUATE RESEARCH & ARTS CELEBRATION (URAC) | WESTMINSTER COLLEGE

April 2025

Scrabble AI Capstone, Oral Presentation

UNDERGRADUATE RESEARCH & ARTS CELEBRATION (URAC) | WESTMINSTER COLLEGE

April 2025

Prime juggling patterns with a fixed state, Oral Presentation

UNDERGRADUATE RESEARCH & ARTS CELEBRATION (URAC) | WESTMINSTER COLLEGE

April 2025

Prime juggling patterns with a fixed state, Poster Presentation

JOINT MATHEMATICS MEETINGS | SEATTLE CONVENTION CENTER

January 2025

Root Finding with Genetic Algorithms, Oral Presentation

UNDERGRADUATE RESEARCH & ARTS CELEBRATION (URAC) | WESTMINSTER COLLEGE

April 2024

Leaky Power Domination: Solving the 1-Leaky Tree, Oral Presentation

MATHEMATICAL ASSOCIATION OF AMERICA ALLEGHENY MOUNTAIN SECTION MEETING | FAIRMONT STATE UNIVERSITY

April 2024

Leaky Power Domination: Solving the 1-Leaky Tree, Oral Presentation

PI MU EPSILON UNDERGRADUATE STUDENT CONFERENCE | YOUNGSTOWN STATE UNIVERSITY

February 2024

Monitoring Faulty Power Networks: Leaky Power Domination in Graphs, Oral Presentation

UNDERGRADUATE RESEARCH & ARTS CELEBRATION (URAC) | WESTMINSTER COLLEGE

April 2023

The Motion of Soap Film Bubbles & The Dynamic Viscosity of Air, Poster Presentation

UNDERGRADUATE RESEARCH & ARTS CELEBRATION (URAC) | WESTMINSTER COLLEGE

April 2023

Monitoring Faulty Power Networks: Leaky Power Domination in Graphs, Poster Presentation

UNDERGRADUATE RESEARCH AT THE CAPITOL – PA (URC-PA) | PA CAPITOL BUILDING

March 2023

Grants

Drinko Travel Grant

DRINKO CENTER | WESTMINSTER COLLEGE

Awarded November 2024

- Awarded to attend the Joint Mathematics Meetings 2025 in Seattle, WA

Drinko Travel Grant

DRINKO CENTER | WESTMINSTER COLLEGE

Awarded April 2024

- Awarded to attend the Mathematical Association of America Allegheny Mountain Section Meeting in April 2024

Service & Outreach

Operation Christmas Child Fundraiser

WESTMINSTER COLLEGE

August 2024 – November 2024

- Organized a fundraiser to support Operation Christmas Child, an initiative by Samaritan's Purse
- Hosted a packing party to put together shoe boxes, using items bought with the fundraised money
- **Collaborators:** Talia Morgenstern; Jim Mohr II and Diane Gabriel of the Office of Faith & Spirituality at Westminster College
- **Goals:** Raise \$ 1500–\$ 1800, Pack 60 boxes
- **Outcome:** 60 boxes were successfully packed

Student Representative | Community Engagement Advisory Team

WESTMINSTER COLLEGE

September 2023 – May 2025

- Serve as the Student Representative from Westminster College to the Advisory Team
- Provide guidance on scope and implementation of project ideas
- Assist with making community connections and identifying resources as needed
- **Goal of Advisory Team:** Promote long-term, community-based education to better the College, the community, and its students

Operation Christmas Child Collection Drive

WESTMINSTER COLLEGE

August 2022 – November 2022

- Planned and organized a collection drive to support Operation Christmas Child, an initiative by Samaritan's Purse
- Hosted a packing party to put together shoe boxes
- **Collaborators:** Talia Morgenstern; Jim Mohr II and Diane Gabriel of the Office of Faith & Spirituality at Westminster College
- **Goal:** Pack 50 boxes
- **Outcome:** 50 boxes were successfully packed

Honors & Awards

Dean's List

WESTMINSTER COLLEGE

- Awarded to students who earn a 3.60 GPA
- Earned in the following semesters: Fall 2021, Spring 2022, Fall 2022, Spring 2023, Fall 2023, Spring 2024

Skills

Programming CS Concepts

Python, Java, C++, Sage, R, SQL, OpenGL, Scheme, MIPS Assembly Language
Data Structures, Algorithm Analysis, Artificial Intelligence, Database Design, Computer Graphics,
Computer Architecture, Language Design & Implementation

Web Development Software & Tools

HTML, CSS, Bootstrap, JavaScript, Adobe ColdFusion, Adobe Photoshop, WCAG 2
Anaconda Spyder, Eclipse, Code::Blocks, Visual Studio Code, LoggerPro, L^AT_EX(Overleaf), GitHub,
Google Workplace Suite, Microsoft Office

Soft Skills

Oral and Written Communication, Leadership, Teamwork, Problem-Solving, Time Management,
Self-Motivation, Strong Work Ethic