



Nelson David Xunic Cuá

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Education

Bachelor of Arts in Mathematics and Computer & Information Science

Graduation May 2025

Berea College

Berea, KY

Cumulative GPA: 3.4 | Math GPA: 3.9 | Computer Science GPA: 3.6

Awards: Tuition Promise Scholarship (\$ 204K)

Dean's List: Fall 2021, Spring 2022, Fall 2022, Spring 2024

Relevant Coursework: Abstract Algebra II, Topology, Real Analysis, Combinatorics, Calculus III, Theory of Computation, Operating Systems & VMs, Computational Complexity & Modeling, Programming Languages, Data Structures

Research Experience

Berea College

Berea, KY

Mathematics Research Assistant

May 2024 – June 2024

- Investigated the relationship between hypergraphs and the Nim value patterns in the Take-Away game, working collaboratively with a team of five students and a research advisor.
- Developed two theorems and identified three potential conjectures regarding Nim value patterns in hypergraph-based Take-Away games, building upon the previous work of the research advisor.
- Took the lead in developing a new approach to analyzing Nim values in hypergraph-based games, leading to the discovery of the two theorems.
- Demonstrated strong problem-solving, critical thinking, and time management skills, working independently and effectively as part of a team.

Mathematics Research Assistant

May 2023 – June 2023

- Collaborated with a team of students and professors exploring Graph Theory concepts and studying Combinatorial games.
- The results of this research include two new theorems regarding Nim values of the Take-Away game played in tripartite graphs.
- Demonstrated strong problem-solving and critical thinking skills and the ability to work independently and manage time effectively.

Mathematics Research Assistant

May 2022 – June 2022

- Teamed up with three other students, under Dr. Bouchat's and Dr. Barnard's supervision, to explore Graph Theory concepts and learn methods to prove Graph Theory problems.
- Explored new methods to solve the Graceful Tree Conjecture by investigating the meaning of products of matrices associated with a graph.
- Demonstrated strong problem-solving and critical thinking skills and the ability to work independently and manage time effectively.

Work Experience

Berea College

Berea, KY

Senior Teaching Associate

August 2024 - Present

- Oversaw and coordinated the activities of a team of 20+ teaching assistants, ensuring efficient and effective support for students in various math courses.
- Met regularly with faculty members to discuss teaching assistants' concerns, provide feedback, and advocate for the needs of students.
- Led weekly labor meetings, facilitating communication among teaching assistants and addressing workload, scheduling, and professional development issues.
- Continued to provide individual tutoring and office hours to students, offering in-depth support and guidance.

Mathematics Teaching Assistant

August 2021 - Present

- Tutored over 20 students per semester in various math courses, including Abstract Algebra, Combinatorics, Calculus I & II, College Algebra, Trigonometry, and Developmental Math, for a minimum of 10 hours per week.
- Graded 3 assignments per week each semester and provided detailed feedback to help students improve their understanding.
- Offered 5+ weekly office hours, assisting students with homework, problem-solving, and exam preparation by developing effective strategies to explain complex mathematical concepts in a clear and understandable manner.
- Participated in professional development workshops to enhance teaching skills and stay up-to-date on current educational trends and implemented new teaching techniques to improve student engagement and outcomes.
- Worked with professors to develop and update course materials, ensuring inclusivity and addressing student concerns effectively.

Open-Source Software Developer (Runestone)

June 2023 – August 2023

- Contributed to the development of open-source Computer Science textbooks on the Runestone platform, for the Software Design & Implementation (CSC 226) and Data Structures (CSC 236) courses.
- Revised and updated content for the new "Open Source: What It Is and How to Contribute" textbook, ensuring accuracy and clarity.
- Gained practical experience with Git, issue tracking, code review, open-source licensing, and collaborative development workflows.
- Collaborated effectively with a team of four students and one project leader to enhance learning materials and implement best practices for open-source software development.

Volunteer Experience

Olimpiadas Internacionales de Matemática en Guatemala

Guatemala

Mathematics Instructor

June 2018 - September 2022

- Instructed 60+ students on concepts in areas such as Algebra, Geometry, Number Theory, and Combinatorics to help them gain a different perspective on Math and prepare for international competitions.
- Partnered with team members to develop a curriculum for advanced math classes emphasizing problem-solving skills, which resulted in a 10% higher success rate for students.
- Led sessions outside the classroom hours by preparing practice questions to ensure 20+ high-school students' successful completion of math challenges.
- Worked with team members to plan, execute, and develop engaging and interactive lessons and activities for math enrichment programs and events, such as clubs and competitions.

Selected Honors and Awards

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| 2024 | Induction into Honor Society , Gamma Mu Chapter of Epsilon Pi Tau Honor Society | Berea, KY |
| 2024 | Award Recipient , Departmental award for exceptional performance and contributions through the Labor Program. | Berea, KY |
| 2023 | Induction into Honor Society , Kentucky Epsilon Chapter of Pi Mu Epsilon Honor Society | Berea, KY |
| 2022 | Scholarship Recipient , CMD-IT/ACM Richard Tapia Celebration of Diversity in Computing Conference | Washington, DC |
| 2019 | First Place , National Science Olympiad of Guatemala in Mathematics | Guatemala |
| 2018 | Honorary Mention , 5-th Iranian Geometry Olympiad | El Salvador |
| 2018 | Member of the Guatemalan Team , XXXIII Iberoamerican Math Olympiad | Spain - Portugal |
| 2018 | Fourth Place , National Science Olympiad of Guatemala in Physics | Guatemala |
| 2017 | Member of the Guatemalan Team , XIX Central America and Caribbean Math Olympiad | El Salvador |
| 2017 | First Place , National Science Olympiad of Guatemala in Chemistry | Guatemala |

Skills

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| Programming | Python, C++, HTML/CSS, Javascript, and LaTeX. |
| Tools | Visual Studio, Pycharm, \LaTeX (Overleaf). |
| Professional | Problem-solving, critical thinking, time management, able to work independently but also effectively as a team member. |
| Interests | Running, math problem-solving, broom-making, origami, and all kinds of craftmaking. |
| Languages | English and Spanish |

Extracurricular Activities

Berea College

Berea, KY

Cross Country Team/Track & Field Team

Fall 2023-Present

- *Teamwork & Discipline*: Contributed to a positive team dynamic through consistent participation and maintained a rigorous training schedule.
- *Athletic Performance*: Improved 5K, 8K, and 10K times by 3, 5, and 4 minutes, respectively.

Latinx Student Union (LSU) - Co-Founder & Treasurer

Fall 2023-Spring 2024

- *Leadership & Organization*: Co-founded LSU and served as Treasurer, leading initiatives and managing finances.
- *Event Planning & Community Engagement*: Organized 5+ cultural events, including Latinx Heritage Month celebrations, film screenings, and guest speaker panels, attracting over 30 attendees each.
- *Membership Development*: Recruited and mentored members, fostering a strong sense of community and belonging.
- *Financial Management*: Developed and implemented the organization's budget, ensuring fiscal responsibility.

Couch to 5K/10K

Spring 2021-Present

- *Personal Development*: Completed 8 10-week training programs, developing discipline, perseverance, and time management skills.
- *Athletic Achievement*: Successfully completed multiple 5K and 10K races.

Intramural Soccer

Spring 2021-Present

- *Teamwork & Sportsmanship*: Participated in intramural soccer tournaments, demonstrating strong teamwork and sportsmanship.
- *Community Involvement*: Contributed to a fun and inclusive community event that brought students together through their passion for soccer.

Google Developers Student Club

Spring 2022-Spring 2023

- *Technical Skill Development*: Attended regular meetings and events, including talks by industry experts, hackathons, and workshops.